

# THE IRON AGE

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## Manufacturing Methods in Making the National Cash Register



BY L. S. LOVE

**M**ANUFACTURING methods that have proved themselves are always worth knowing. When most of them are adaptable to the average metal goods manufacturing plant, they have an intensely practical value. When back of them is the record for signal success such as belongs to the internationally known National Cash Register Co., the practices have a special appeal. The giving up for publication of details of metal working procedure at the National cash register works is at once a stamp of dependability and of the bigness of the company. It is not uncommonly characteristic of the successful manufacturing institution to find it a free contributor to helps in solving industrial problems, establishing thus a reputation for initiative, originality and resourcefulness which reputation is not dimmed nor commercial advantage injured by any necessarily delayed adoption by close competitors of its broadly useful methods. Naturally references to this great industrial development are bound to reflect the evidences of the leadership, far-sightedness, enterprise and genius of the late John H. Patterson, to whom Dayton, Ohio, the home of the company, as well as the cause of industrial and civic improvement, owe so much.

The present purpose is to describe in a general way the processes of manufacture of a cash register as carried on by the N. C. R.; as the company builds some five hundred sizes and models, it is manifestly impossible to go into full detail in an article of this nature. Emphasis will be laid on a number of the

labor-saving or high production features and what the company has found necessary to do to hold its equipment sufficiently flexible to cover the range of work and still maintain large production.

The National is a machine not merely for use in retail stores. It is made not only for cash registering, but also for time and record keeping, suitable for a wide variety of business uses. The company's latest product, the National accounting machine, for banks and other business institutions, keeps a completely balanced record of the business at every moment of the day. The company manufactures also a telephone system for credit department use in stores where charge accounts are carried and also charge account record files which keep charge accounts posted to the minute.

The idea of the cash register was first conceived by James Ritty in 1879, from his study of a dial recording the revolutions of an ocean liner's propeller. The first cash register, patented by Mr. Ritty, had a dial type of indication. In 1881 all patent rights in the cash register were sold to the National Mfg. Co. About this time John H. Patterson was a stockholder in the Southern Ohio Coal & Iron Co., and manager for the company at Coalton, Ohio. In connection with the mines the company operated a general store, which did a good business but made no money. Mr. Patterson heard about a cash register being made in Dayton and purchased two. The store soon showed a profit. Later two registers were installed in the retail coal offices in Dayton, operated by Mr. Patterson and his

**M**ANUFACTURING on a high production basis and at the same time maintaining a flexibility of equipment to accommodate changes to some five hundred models and sizes is the achievement of the National Cash Register Co. How this is accomplished in tool designing and making, and what has been done in developing the manufacturing methods and in the employment of special machines as well as adaptations of standard machine tools are told in the latter parts of the accompanying article. A rather unique material handling system and an outline of the welfare and employee education methods, with which are closely linked the name of the late John H. Patterson, are among features of the article calculated to have a wide appeal to the metal goods manufacturing industry, owing to the general adaptability of the information.

brother, and these uncovered a leak that had cost \$1,200 in two years. These experiences showed Mr. Patterson the value of a cash register, and in 1884 he purchased a controlling interest in the National Mfg. Co., which name was changed later that year to that of National Cash Register Co. From the modest shop in a single second story room with two employees, the business has grown in about forty years to occupy a plant of some 44 acres of floor space and some 10,000 employees, with ramifications to every quarter of the globe.

In the scheme of management the pyramid plan is employed, with the general manager at the head. To him report the manufacturing superintendent, the chief engineer, the research engineer, and the head of the future demands department.

The superintendent controls the machine division, including tool design and tool making, the assembly, stock, transportation, wood shop, rate making and the efficiency engineering division.

Under the chief engineer are not only the invention and model departments, but also the tool supply and making of petty tools. But most important is the inspection, which, being under the engineer, is entirely separated from the manufacturing divisions and thereby calculated to insure quite impartial inspection. This inspection covers incoming materials, manufactured parts, and final assembly.

One of the first impressions received by the visitor is that the institution is essentially an organization of young men. A second impression is the broadminded attitude of the management in sharing its manufacturing methods with the world, so to speak, and its willingness to show the visitor just what they are doing and how they do it. In fact, many tools, jigs and fixtures, and special machines originated by this company are illustrated and described in text books, or in some cases are a part of the regular line of machine builders. Noteworthy is the number of men sent out into other lines of business from this institution, who because of the training received have become prominent figures in the world's work. Outstanding is an evidence of esprit de corps, which can be defined by three words: Loyalty, cooperation and pride—loyalty to the company; cooperation with the rest of the organization and pride in the establishment.

In a description of the manufacturing processes, it is desirable to understand the company's policy with regard to machinery. Naturally on a highly specialized product, in many cases, it is not possible to use standard commercial equipment. It is the aim of the company wherever possible to adapt to its uses such equipment as can be purchased in the market, and the bulk of its equipment of some 5000 machines is of this nature. Many machines required to give greatest production cannot be bought outside, and for this purpose a special engineering department, headed by an efficiency engineer, reporting to the superintendent, has as a part of its duties that of the selection of proper equipment and the design of such special machines as cannot be purchased. These machines are built outside or in the company's own shop, a general machine shop being maintained for the purpose. A special machine must show that it can pay for itself in one year in saving of cost over old method. Or it must produce greatly improved quality. Otherwise it is not considered a profitable investment.

Before arranging to buy or design and make new tools or fixtures the "future demands" department will report to the factory on a probable future demand and the turn it will take when these reports show sufficient leaning on the part of the public toward requiring a certain function, the engineering division is instructed to design a machine or changes in an existing model to accomplish the ends desired. For this purpose a corps of inventors and designers is maintained.

After a new design has been perfected and approved, a model is constructed and tested for proper working. For this work there are maintained three separate machine rooms. One a school for model makers, whence men are graduated into the department which manufactures models and their parts or into the department where the models are assembled and tested. After passing the test, drawings of the new models,

improvements or changes in existing models, are sent to what is known as the tool supply department with the improvement or change number to be made in an existing pattern or with a new number to classify a new design.

The tool supply department, which is under the chief inspector, calls together a processing committee, consisting mainly of the head of the tool supply department, the supervisor, foreman and job foreman of the department in charge of that particular type of register, the head of the tool making department and the head of the tool designing division, and the man in the tool supply department in charge of tools, models and blueprints for the particular type of register under consideration. This committee lists the proper tools and sequence of operations through the factory for the improvement or new part.

As a result of this committee meeting the tool supply department issues an order known as a tool list, on the stock ordering department, with copies to all other departments interested. This is the stock ordering department's notification to arrange for new or changed usages of raw materials. Individual tool orders are also written from this tool list for the designing and making of the new tools or the changing of present tools to produce the new and changed parts required. As soon as the changed tools are completed, a second list, called the approved tool list, is issued by the tool supply department to the stock ordering department, with copies to all other departments interested. This new list takes care of any changes in operation, methods of manufacture, or other corrections which might have developed during the process of tooling up the job. From the approved tool list the stock ordering department issues orders on the various production starting departments for the quantities of the various kinds of register parts required, depending on their usage. When tools are completed they are returned to the tool supply department to be inspected and checked against the print of the tool and the print of the part.

The tool supply department also issues orders for the maintenance of all tools and machinery in the production division. It maintains 23 tool supply rooms throughout the factory. It stores and indexes all patterns; carries all models and blueprints. It furnishes from the stock room all material for making tools on orders through the material section.

The duties of the tool design department are clearly defined. On receipt of orders from the tool supply department to design tools for the production of a certain part they receive the list of machines on which the tools are to be used. They may recommend changes in machines contemplated if such changes seem desirable.

One important consideration to be borne in mind by the tool design department is that frequent changes, due to comparatively small lots, are made in the tools, consequently simple set-ups are essential. There are 30 employees in this department who are divided into sections and specialize on jigs and fixtures, punches and dies, screw machine tools, and small tools, respectively. This department designs every class of tool for use in the production departments, even to form cutters, special cutters, reamers, etc.

The method of procedure referred to in describing the duties of the tool supply division is as follows: Upon receipt of order accompanied by blue prints of parts and list of machines to be used in production, these are turned over to the particular tool designer delegated to design the tools for the job. He makes a sketch of the tools he proposes and submits it to the job foreman for suggestions before proceeding with a completed drawing. When the latter is completed it is submitted for approval to the head of tool design, the head of tool making, production department supervisor on the class of work covered, the foreman of the department and the job foreman, before working drawings are made. With all of this checking mistakes are avoided and useless tools are not made before any possible mistake in design is discovered. The original is filed in the usual manner and prints are sent to the tool room.

(To be continued)



## THE PRESIDENT AND BUSINESS

### Attitude of Administration Toward Economic Questions Suggested by Chamber of Commerce

WASHINGTON, Aug. 28.—American business as represented by a committee of the Chamber of Commerce of the United States, made its first call upon President Coolidge at the White House last week and announced its position regarding a number of important economic questions. One policy advocated by the business representatives for administering the flexible provisions and definitely opposed by the administration concerns the advocacy by the chamber of the creation of a separate tariff adjustment board "so that the tariff commission may continue uninfluenced, its functions as a research and reporting body." It was made clear at the White House that President Coolidge feels that the tariff commission itself is capable of and best qualified to handle this new departure in tariff making.

#### A Flexible Tariff

While it already is proving to be a complicated matter, and apparently will be more so for some time, it is maintained that the task of investigation and conducting hearings under these provisions is so closely related to the general work of the commission, that it would not be wise to set up a new board. To do so, it is contended, would in fact produce more or less complication and duplication of effort, and would add to the already great number of government bureaus and boards. It also was pointed out that the tariff commission is a bipartisan body and that it certainly is not supposed to be influenced from any source and is as free from influence as would be any additional board that might be set up.

Present indications seem to be that President Coolidge will follow the Harding policy concerning the flexible provisions, although it remains to be seen whether he has as great faith in their efficacy as Mr. Harding did. The representatives of the chamber in their conference with President Coolidge took occasion to advocate the principal of a flexible tariff, their only point being that there should be a change in the procedure of administering it.

#### Merchant Marine

Concerning the merchant marine, the chamber representatives told the President that they are opposed to the government engaging in commercial business and urged further efforts to evolve a plan of private operation before entering upon direct government operation. The chamber, the committee told the President, is in favor of a ship subsidy, in an attempt to equalize operation disadvantages of American ships. The proposal of the chamber on this subject, it is believed, has the sympathy of the President.

It is well known, that like the chamber, he is opposed to the government's engaging in commercial business. At the same time, it has been explained, the government finds itself with a merchant marine and so far has been unable to dispose of it on a satisfactory basis to private citizens. President Coolidge was in favor of the ship subsidy bill sponsored by the late President Harding, but with the failure of the Senate to act upon the measure, the Shipping Board had to turn to other alternatives. It did make an effort to sell ships to private owners but offers submitted were not satisfactory and while it has not definitely foregone this idea, it apparently is not hopeful of its successful execution in the near future.

Meanwhile the board is trying to develop a policy with the approval of the President of readjusting regular trade routes for American ships, looking to the highest possible efficiency under the government ownership in the carrying of exports and imports and the best possible service to American shippers. Briefly, a subsidiary corporation under the Shipping Board is suggested to have charge of the operation of the different units of an American merchant fleet, which would be concentrated on given ocean lines. There has been some question as to the legality of this pro-

posal and it is understood that President Coolidge is seriously considering the appointment of a committee not only to study this program but also to investigate other plans with a view to determining a merchant marine policy. The committee to study such a policy, it is stated, would be made up of the Chairman of the Shipping Board, the Secretary of Commerce, the Secretary of the Treasury, the chairman of the House Committee on Merchant Marine and Fisheries and the chairman of the Senate Committee on Commerce and the Attorney General. Some government officials are strongly of the opinion that the best possible service American business could render to the merchant marine would be a campaign urging shipping in American vessels.

Tax reforms urged by the chamber likely will not eventuate at the next Congress. While it seems altogether likely that these reforms or at least a large portion of them, meet with the approval of the President and the Secretary of Treasury Mellon, it is seriously doubted that the proposals would stand a chance of being adopted by Congress.

#### Selective Immigration

Concerning immigration, the committee told the President that the chamber believes in restriction and that the principle of selection should be a controlling factor in immigration legislation. At the White House it has already been indicated that the only immigration legislation which President Coolidge will urge at the next session of Congress will be in favor of the plan of Secretary of Labor Davis for the selection abroad through American consulates of immigrants coming to the United States.

### Wright Machine Co. to Manufacture Screw Machine Products

The plant of the R. B. Phillips Mfg. Co., Worcester, Mass., with its equipment for the manufacture of screw machine products on a large scale, has been purchased from the owner, the American Steam Gauge & Valve Mfg. Co., Boston, by a new corporation, controlled by Worcester men, to be known as the Wright Machine Co. At its head is George M. Wright, who was president of the Wright Wire Co. until its absorption in the Wickwire-Spencer Steel Corporation.

It is proposed to start up the factory, which has been idle for three years, under the management of A. R. Lemieux, formerly with the Reed & Curtis Co., Worcester, later head of the Hampden Mfg. Co., Springfield, Mass., and, when that business was bought by the Ansonia Mfg. Co., head of its screw machine products department. Recently Mr. Lemieux has been receiver of the A. R. Moseler Co., New York. The Phillips plant, operating at capacity, employs about 400 people. The company proposes later to add a standard product of its own.

The Worcester Machine Co. will be capitalized for \$1,000,000, of which \$400,000 is in bonds, \$250,000 in preferred stock, and \$350,000 in common stock. The officers will be: President, George M. Wright; treasurer, George B. Cunningham, long associated with Mr. Wright in his business; directors, the above officers and Mr. Lemieux, George F. Wright, head of the George F. Wright Steel & Wire Co., Worcester, and J. Verner Critchley, president of the Reed-Prentice Co. and Walden-Worcester, Inc., who as head of the Critchley Machine Screw Co. built the Phillips plant.

### Complaint Against Freight Rates to St. Louis

WASHINGTON, Aug. 28.—Complaint has been filed with the Interstate Commerce Commission by the Jones & Laughlin Steel Corporation, against rates on manufactured iron and steel products from the Pittsburgh district to St. Louis and points in Illinois and Indiana. It is contended that these rates are unreasonable and discriminatory.

The fall meeting of the Electric Power Club will be held at the French Lick Springs Hotel, French Lick, Ind., Nov. 19 to 22. S. N. Clarkson, 900 Keith Building, Cleveland, is executive secretary.

# Lungyen Blast Furnace Plant Near Peking

First Unit of the Mining Administration's Plans Is of 250  
Tons Capacity Per Day and Is the First Modern  
Furnace in North China Proper

BY K. E. HUMBERT\*

**I**N the initial Lungyen project is included one 250-ton per day blast furnace, capable of being enlarged to 300 tons by relining, with raw material handling equipment and storage, boiler plant, power house and water supply development. The arrangement provides for future installation of additional blast furnaces, by-product coke oven plant, steel plant and rolling mills for producing a diversified line of products. The plan of the new plant and a typical cross section through the plant are shown.

The furnace stock system is of the tunnel type and comprises a two-track concrete trestle and a larry tunnel extending the length of this trestle. The concrete tunnel is 14 x 14 ft., the roof provided with a series of bin bottoms, each with a segmental type of gate, operated from the scale car platforms. The discharge chutes of the coke bin have screens for the removal of braze. Two scale cars, furnished by the Atlas Car & Mfg. Co., Cleveland, Ohio, are the side dump type, of 120 cu. ft. capacity each.

Storage capacity is provided for six weeks' supply of ore and one week's supply of limestone. The steel coke bin is located on the center line of the furnace, ore and limestone being stored on either side. The bin is 70 ft. long, with capacity for one day's operation. The coke bin is covered, ore and stone storage being in the open.

The skip incline is double tracked for two 110 cu. ft. skip cars of the bucket type, also provided by the Atlas company. It is placed at an angle of 60 deg. to the horizontal. The skips are operated by an Otis Elevator Co. double-drum steam-engine-driven hoist. The drums are 72 in. in diameter, grooved for 1½ in. diameter hoist ropes. The hoist has a rope speed of 375 ft. per

min. and is designed for an unbalanced load of 10,000 lb. An automatic steam brake is provided. The hoist is located in a steel frame, corrugated steel covered building, utilizing in part the extended coke bin columns.

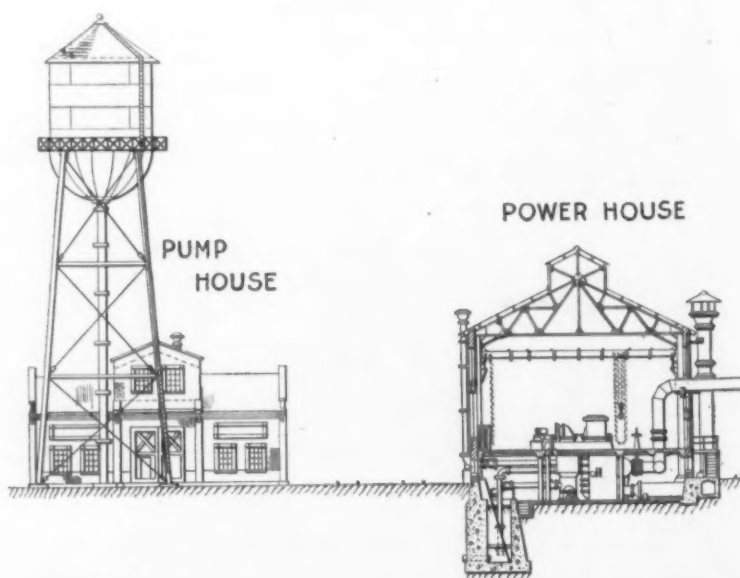
Here are also housed the steam operated bell cylinders, and the indicators for the furnace stock testers. A 5-ton trolley hoist provides for repairs or for lifting from the ground. The operator from his position can see both the furnace top and the skip pit. Stairways lead from the hoist house along the skip bridge to the furnace top, or down to the trestle level, and thence to the ground.

The furnace top is of the standard double bell design. The gas is taken off the furnaces by four uptakes, leading to four bleeders, surmounted with explosion valves. There is a cross connection for each pair of bleeders, about 15 ft. above the furnace top platform. From each cross connection a downcomer leads off. The four uptakes are spaced to equalize the flow of gas over the entire top area and reduce the gas velocity, with a resultant decrease in the dust carried off by the gas. In addition, the height of the cross-pipe connection retards the dust from getting into the downcomer, so that with this type of top a decreased amount of dust is made, compared to the design of top where the downcomers are taken off practically at the top platform level.

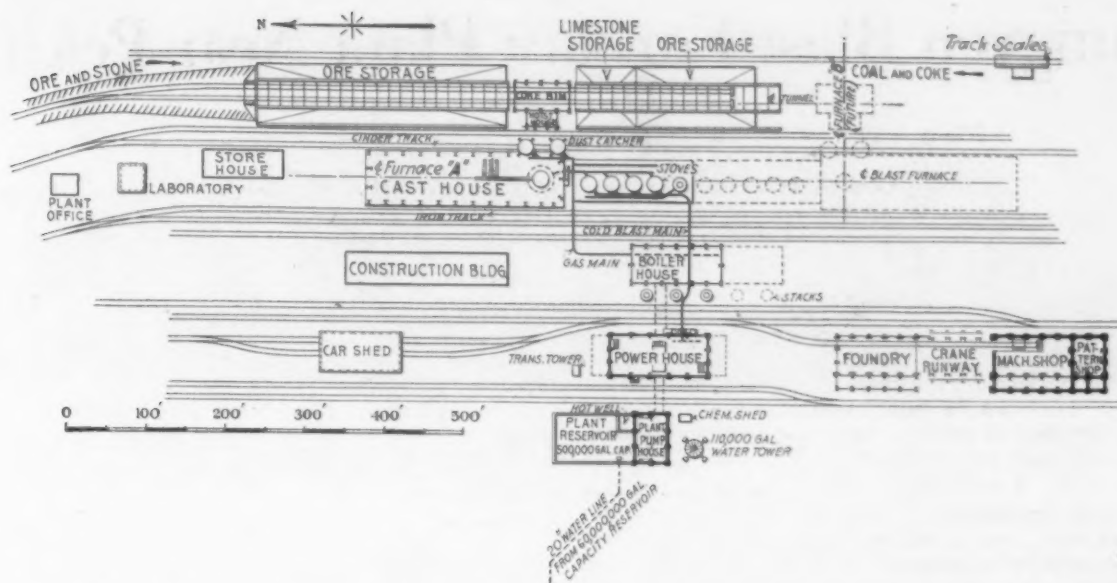
These bleeders also serve to carry the bell beam platform, eliminating the separate structure required for this on some tops. The top platform is made large enough to allow ample working space for making repairs. Platforms are provided at all essential points, with substantial guard rails. A 5-ton jib crane provides for raising material to the top platform. Access is had to the top platform by interrupted flight stairs on the skip bridge, or by stairs leading from the ground to the stove top platforms and thence to the furnace.

\*With Perin & Marshall, consulting engineers, New York. This article is the second portion of that on "Modern Iron and Steel Works in China," begun on page 461 of our Aug. 23 issue.

**S**ECTION (Looking North) Through the Lungyen Furnace Plant, Showing Logical Sequence of the Several Elements. The hot metal track is the one nearest the cast house, between the furnace and the boiler house. The furnace is of 250 tons daily capacity, but has a lining so thick that it can be changed, on relining, to 300 tons. Plans for the future call for a second blast furnace, by-product coke ovens, a steel mill and rolling mills







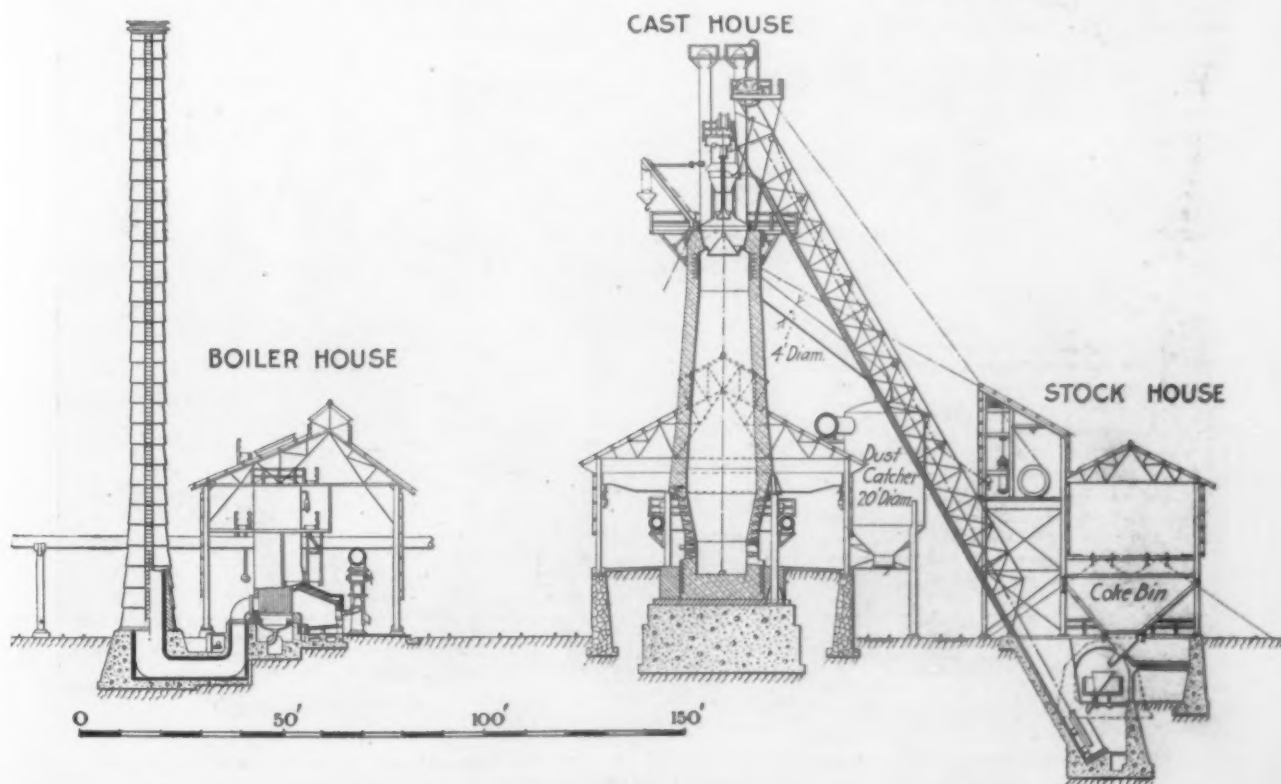
This Plan of the Lungyen Plant of the Lungyen Mining Administration, at Shiechinshan, 11 Miles From Peking, Shows the Arrangement for Later Development into a Two-Furnace Plant. Ample water supply is afforded by means of the 20-in. pipe line from the west, drawing by gravity from a 60,000,000-gal. reservoir in the side of a hill alongside the Yung T'ing River

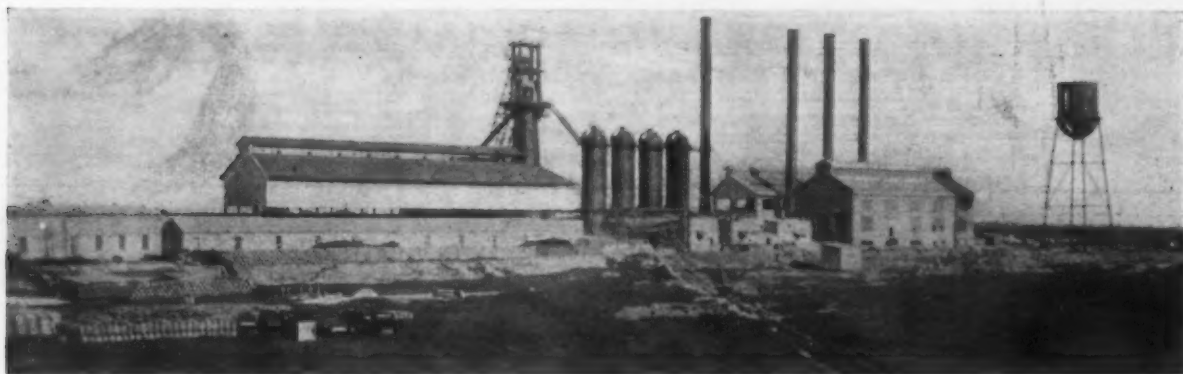
The furnace is 85 ft. high, its bosh diameter is 18 ft., and the capacity is 14,000 cu. ft. It is set on a sub-base of rock, much of which had to be excavated, as it extended above the required level. There are eight structural columns placed on a 27-ft. diameter circle, allowing for enlarging of the hearth and bosh in the future. Brackets on the columns support the bustle pipe, circle pipe and waste water trough. The bustle pipe is 42 in. diameter, of  $\frac{3}{8}$  in. plate, with 9 in. brick lining, and is carried on cast iron saddles free to move on the column brackets, thus providing for expansion. An ample number of manholes facilitates relining. The bustle-pipe walkway continues on the hot blast main to the end of the cast house, where a ladder leads to the floor level.

The hearth jacket is of  $1\frac{1}{4}$ -in. steel plate, with 3-in.

thick cast iron water cooled circular plates between it and the furnace brickwork. The tuyere breast is of 1-in. steel plate, with openings for the eight tuyeres and two rows of bronze cooling plates. The bosh jacket is of the solid plate type,  $\frac{3}{8}$ -in. plate being used here. There are six rows of bronze cooling plates in the bosh. The mantle is built up of 1-in. plate and heavy angles, and has a trough for collecting shell spray water.

Bottom and top rings of the furnace shell are of butt strap construction, and the intermediate rings have triple lap-riveted vertical and double lap-riveted horizontal seams. Brackets on the shell bottom ring at each column, inside and outside, help distribute the shell load and reinforce this ring. There is one row of cast iron cooling plates above the mantle. The shell top ring has outside structural brackets carrying the





Lungyen Furnace Plant at Shiechinshan, in Chihli Province, viewed from the North-West. The long, low construction building lies between the observer and the cast house (left center). The stack at right of the four hot-blast stoves is designed to serve also the four additional stoves, to be erected for the second furnace, which will be farther to the right. Two more boiler house stacks then will be added to the three now up. The water tower will hold 110,000 gal.

top platform and inside cast steel brackets supporting the large bell hopper. Four steel plate gas uptakes also lead from the top ring.

The furnace brick lining is of the Harbison-Walker "Woodland" brand. Stock line protection consists of small unit cast steel wearing plates, laid integral with the lining.

In addition to the regular iron notch, an auxiliary notch, 22½ in. higher, is provided. The working cinder notch is 90 deg. from the iron notch. There is also an auxiliary cinder notch.

The cast house labor required for producing and handling such a large tonnage of sand cast foundry iron has been greatly reduced by the installation of a Shutts-Goodwin pig bed molding machine, which is cylindrical in shape, with four offsets on which the patterns are placed. It is mounted on a shaft with a bail attached, by which it is drawn over the sand, the cast house crane being utilized for pulling it. Beds are made up this way in about 15 minutes in comparison to 2 or 3 hr. required for hand molding. Cinder will be run into Pennsylvania Engineering Works side dump cinder ladles of 300 cu. ft. capacity, air operated.

The cast house is 63 ft. span, 218 ft. long from the

center of the furnace, has corrugated steel siding, ¼-in. plate roof, and a monitor throughout its length. A 10-ton crane is installed to handle cast house materials, and for the operation of the pig bed molding machine. Water lines with hose connections extend along both sides. A Berg-Brosius safety mud gun is provided.

Gas from the furnace top is led through two 4-ft. diameter downcomers, each of which enters the top of a 20-ft. diameter barrel type dust catcher, with capacity exceptionally large for a furnace of this size. It is expected that this, in conjunction with the furnace top design, will result in a gas with comparatively low dust content. Further gas cleaners may be installed should they be desired later. From the dust-catchers the gas enters a common 5-ft. 9-in. diameter main leading a short distance to a large downleg, from which are taken the branches leading to the stoves and the boilers.

The four stoves are of the two-pass, side combustion type, 20 ft. in diameter by 85 ft. high, and have 36,200 sq. ft. of heating surface each. Brick linings for the stoves and all mains were made in China by the Kailan Mining Administration. Fittings include 24-in. cold blast, 27-in. hot blast, 24-in. gas burner, 36-in. chimney and 12-in. air relief valves and three 21-in.



Because of Doubts Regarding the Stability of the Soil at Lungyen, Foundations for the Furnace and Stoves Were Carried Down Through the Solid Rock of a Stone Quarry





Lungyen Furnace Plant from the North-East. The ore storage is between the cast house (left center) and the "high-line" fill in foreground, which takes the place of the usual trestle

cleaning doors, all in the bottom ring, and three 30-in. cleaning doors in the top ring.

All mains and flues are overhead. The hot blast main is 4 ft. diameter with 9-in. brick lining. The gas main is also 4 ft. diameter, with 4½-in. lining, and 3-ft. downlegs at each stove. A 5-ft. 9-in. diameter chimney flue, with 4½-in. lining, leads to a 7-ft. inside diameter x 175-ft. high self-supporting brick lined steel stack. The cold blast main is 24 in. in diameter. A

10-in. equalizer line leads from the cold blast to the hot blast main, around the stove farthest from the furnace. A counter weighted relief valve and the usual snort valve are provided. The complete system of platforms around the stove tops is reached from the furnace top platform, or by means of stairs extending alongside of the stove and supported by them.

(To be concluded)

## NITROGEN IN STEEL

### Distillation and Combustion Method of Analysis Compared

Starting with the assumption that no conclusions concerning the effects of nitrogen on the physical properties of steel can be more reliable than the methods used for determining the quantity of nitrogen present, C. Baldwin Sawyer, the Brush Laboratories Co., Cleveland, in a paper entitled "Nitrogen in Steel," prepared for the annual summer meeting of the American Institute of Mining and Metallurgical Engineers at Montreal, Aug. 30, describes the work undertaken to establish some additional conditions required by the customary distillation method for reliable and accurate determinations. Results by a combustion method of analysis for total nitrogen content are presented. These indicate that all of the nitrogen in steel, exclusive of that contained in blow-holes, may be determined by the distillation method. Results have been obtained which bear on the following divisions of the general subject, based on these more sound and more reliable analyses: Nitrification of steel by melting in nitrogen, nitrification of steel by heating in ammonia, decomposition of nitrified steel by heating, and thermal analysis of nitrified steel.

Ingots of pure iron melted under various pressures of nitrogen, when examined for nitrogen content using only the distillation method, were found to contain nitrogen which varied as the square root of the pressure applied. Thin disks of sheet iron, when nitrified in ammonia only until they contained up to 4 per cent nitrogen, when reheated were found to contain a reduced amount of nitrogen equal to an amount definitely related to the reheating temperature and expressible by a curve. A summary of the author's results is as follows:

#### Summary

For obtaining the most accurate results with the distillation method for determining nitrogen in steel, a Kjeldahl trap and a glass-wool strainer should be inserted between condenser and distillation flask. The condenser tube should be of some material other than glass, which yields alkalis to the distillate.

A 2.42-per cent gain in weight by thin sheet iron, because of cyanide hardening, is 97.5 per cent accounted for by results of analyses for carbon and nitrogen, indicating the recovery by the distillation method of all nitrogen introduced into steel by case-hardening processes.

The combustion method for carbon is adapted to total

nitrogen determinations. Results so far obtained by this method indicate complete recovery by the distillation method of all nitrogen introduced into steel by any method. A specially designed phosphorus pipette can absorb from 3 to 4 liters of oxygen at a rate of from 15 to 20 cubic centimeters per min.

Iron melted under an atmosphere of nitrogen absorbs it in accord with the formula:  $%N = k\sqrt{P_n}$ , where

$%N$  = per cent of nitrogen in cooled ingot;

$k$  = a constant having value of 0.020;

$P_n$  = pressure in atmospheres of nitrogen during melting and solidification.

Microscopic examination of ingots melted under nitrogen discovers no trace of nitrogen up to approximately 0.03 per cent, and indicates a solid solution of nitrogen in ferrite. Above 0.03 per cent, many needles were found.

Iron catalyzes the dissociation of ammonia at elevated temperatures and is denitrified by hydrogen so formed; it is therefore difficult to produce uniformly nitrified steel by passing ammonia over it.

Uniformly nitrified thin steel disks, containing up to 1.70 per cent nitrogen, can be produced by heating non-uniformly nitrified disks containing from 3 to 4 per cent nitrogen to different temperatures for different degrees of decomposition. Decomposition so produced can be represented by a curve of per cent nitrogen against temperature; its general shape is that corresponding to similar curves for volatile solutes in nonvolatile solvents.

Transformation points obtained from sets of these disks clearly indicate an iron-nitrogen diagram of appearance similar to the iron-carbon diagram.

Results of photomicrographic examination of the disks are in accord with general findings of transformation-point determinations, and place the eutectoid point at 1.70 per cent of nitrogen. No nitrogen constituent was visible in ferrite up to a content of 0.030 per cent.

Results of bend tests on disks show a great loss in ductility for nitrogen contents above 0.015 to 0.030 per cent, confirming statements in the literature.

In non-uniformly nitrified disks containing 3 to 4 per cent nitrogen, the existence of a second eutectoid is indicated both microscopically and by thermal analysis.

The report of the Ohio State Foundrymen's Association for July shows an increase over operations for the preceding month, as the industry operated at 85.32 per cent of normal in July compared with 81.27 per cent in June. The normal melt figure of the foundries reporting is 29,504 tons and the production of castings was 25,183 tons. Total stocks on hand show a decline in June figures, the figure for July being 37 per cent of normal. Non-ferrous operations show a very slight decline as compared with June, the July figure being 77.22 compared with 77.25 in June.

# Further Decline in Iron and Steel Exports

Imports for July Also Are Less, Though Ferroalloys Are the  
Second Highest of the Year—Exports of Semi-  
Finished Lowest in 18 Months

WASHINGTON, Aug. 28.—Exports of iron and steel products in July totaled 168,558 gross tons, valued at \$21,582,626, as against 171,183 tons, valued at \$21,242,193, in June; while imports amounted to 53,464 tons,

decrease under imports for the same month of last year, when they were 71,971 tons, but for the seven months ended with July of this year, the total of 569,287 tons was a heavy increase over the corresponding period of last year, when the total was 187,648 tons. Imports of manganese ore in July of this year

### Machinery Exports By Value

	July 1922	July 1923	Seven Months Ended July 1922	July 1923
Locomotives.....	\$299,250	\$867,443	\$5,471,714	\$2,693,218
Other Steam Engines.....	193,519	91,733	1,431,407	727,650
Boilers.....	133,565	216,752	560,701	621,627
Accessories and parts.....	101,454	162,654	637,472	622,103
Automobile Engines.....	551,189	275,969	3,773,086	3,566,018
Other Internal Combustion Engines.....	333,669	682,057	2,448,708	3,828,476
Accessories and Parts for.....	194,653	265,502	1,537,006	1,920,219
Electric Locomotives.....	23,085	287,234	456,997	2,464,012
Other Electric Machinery and Apparatus.....	444,901	742,258	5,479,097	4,830,488
Excavating Machinery.....	89,834	117,019	850,290	928,314
Concrete Mixers.....	93,702	55,041	338,346	325,956
Road Making Machinery.....	45,640	114,139	189,523	719,025
Elevators and Elevator Ma- chinery.....	381,714	424,936	2,342,842	2,314,279
Mining and Quarrying Ma- chinery.....	500,710	850,289	3,587,713	5,294,274
Oil Well Machinery.....	445,806	696,523	2,718,997	3,582,798
Pumps.....	474,452	572,955	3,270,705	4,155,515
Lathes.....	61,443	96,780	463,935	461,065
Boring and Drilling Machines	28,059	67,505	363,087	387,347
Planers, Shapers and Slotters	33,881	32,538	181,861	130,512
Bending and Power Presses	7,351	19,030	246,676	115,673
Gear Cutters.....	25,791	20,371	63,094	94,878
Milling Machines.....	27,597	17,913	186,242	240,580
Thread Cutting and Screw Machines.....	16,756	27,913	103,591	268,109
Punching and Shearing Ma- chines.....	9,581	16,666	106,130	103,449
Power Hammers.....	8,973	20,005	64,771	82,721
Rolling Machines.....	129,881	6,010	151,385	17,749
Sharpening and Grinding Ma- chines.....	54,483	87,102	439,979	562,849
Other Metal Working Ma- chinery and Parts of.....	493,410	392,209	3,162,418	2,644,242
Textile Machinery.....	1,471,016	650,165	10,314,101	5,416,426
Sewing Machines.....	640,470	916,922	3,468,550	4,790,367
Shoe Machinery.....	127,087	112,427	584,114	835,249
Flour-Mill and Gristmill Ma- chinery.....	181,233	107,622	821,691	574,244
Sugar-Mill Machinery.....	365,755	431,561	1,543,890	1,522,967
Paper and Pulp Mill Ma- chinery.....	130,335	141,300	1,220,553	1,396,466
Sawmill Machinery.....	25,575	41,734	341,752	312,893
Other Woodworking Ma- chinery.....	161,386	71,974	736,052	625,251
Refrigerating and Ice Making Machinery.....	101,256	157,689	1,214,420	1,411,805
Air Compressors.....	166,475	158,746	1,180,899	1,411,889
Typewriters.....	879,527	1,112,923	6,807,701	8,340,639
Power Laundry Machinery...	74,524	82,078	354,518	576,344
Typesetting Machines.....	207,176	231,947	2,249,822	1,974,240
Printing Presses.....	218,062	342,330	2,253,640	2,455,264
Agricultural Machinery and Implements.....	2,429,149	5,609,825	13,003,517	28,154,335
All Other Machinery and Parts.....	7,466,898	9,074,211	50,611,187	57,501,235
Total.....	\$19,840,273	\$26,469,980	\$137,337,180	\$161,000,790

valued at \$2,147,112, as compared with 68,019 tons, valued at \$2,597,159. For the seven months ended with July of this year exports were 1,141,569 tons and imports aggregated 569,287 tons. While the exports for July were greater than those for the same month of last year, when they amounted to 157,169 tons, they were less for the seven months of the current year, when compared with the 1,345,129 tons of the corresponding period of last year.

Imports for July of this year showed a sharp

### Imports of Iron Ore by Countries (In Gross Tons)

	July		Seven Months Ended July	
	1922	1923	1922	1923
Spain.....	4,891	56,291	20,869	184,000
Sweden.....	54,878	145,508	124,648	546,559
Canada.....	367	9,472	1,321	23,010
Cuba.....	56,275	96,500	133,572	430,351
Other countries.....	50,300	181,596	93,997	583,933

### Imports of Pig Iron by Countries (In Gross Tons)

	July, 1923	Seven Months Ended July, 1923
England.....	9,554	158,428
Belgium.....	3,524	12,817
Scotland.....	2,400	16,671
France.....	1,804	56,009
Canada.....	1,262	38,483
Germany.....	750	20,740
British India.....	215	8,918
China.....	200	950
Sweden.....	51	585
Austria.....	....	299
Total.....	19,760	313,900

totalled 23,824 tons, while iron ore imports were 439,367 tons.

Exports of machinery with a value of \$26,469,980 represented an increase of almost \$3,000,000 over machinery exports in June with a total of \$26,631,349. Imports of machinery in July were valued at \$796,596

### Exports of Iron and Steel (In Gross Tons)

	July		Seven Months Ended July	
	1922	1923	1922	1923
Pig iron.....	1,943	2,966	15,773	17,811
Ferromanganese.....	179	4	908	3,220
Ferrosilicon.....	....	82	249	573
Scrap.....	3,939	4,598	49,298	25,871
Ingots, blooms, billets, sheet bar, skelp.....	10,149	6,480	111,710	69,917
Iron bars.....	....	716	....	9,918
Steel bars.....	*12,927	14,531	*114,428	98,499
Alloy steel bars.....	146	635	2,781	1,549
Wire rods.....	1,844	1,877	34,135	18,127
Plates, iron and steel....	6,932	8,599	65,903	75,266
Sheets, galvanized....	9,245	9,454	73,312	76,949
Sheets, black steel....	12,830	7,471	182,368	68,407
Sheets, black iron.....	923	1,274	7,562	8,876
Hoops, bands, strip steel	3,237	2,695	19,855	23,391
Tin plate,terne plate, etc.....	4,038	13,029	49,452	65,335
Structural shapes, plain material.....	8,676	10,861	63,636	76,861
Structural material, fabricated.....	3,221	7,014	24,443	42,351
Steel rails.....	29,919	24,521	184,363	142,332
Rail fastenings, switches, frogs, etc....	3,500	4,836	21,995	22,986
Boiler tubes, welded pipe and fittings....	11,879	17,671	105,904	108,609
Cast iron pipe and fit- tings.....	2,948	2,317	15,203	15,411
Plain wire.....	9,529	7,117	78,394	57,516
Barbed wire and woven wire fencing.....	10,250	8,384	42,187	49,878
Wire cloth and screen- ing.....	154	188	776	863
Wire rope and cable....	620	550	2,601	4,037
Wire nails.....	2,881	3,780	42,160	22,870
All other nails and tacks.....	760	619	5,421	5,354
Horseshoes.....	145	83	485	547
Bolts, nuts, rivets and washers, except track	1,725	1,719	10,436	11,053
Car wheels and axles..	1,524	2,815	10,453	11,464
Iron castings.....	749	1,000	5,982	6,033
Steel castings.....	108	426	1,358	2,829
Forgings.....	238	246	1,500	1,866
Machine screws.....	11	....	98	....
Total.....	157,169	168,558	1,345,129	1,141,569

\*Includes both iron and steel bars.

as against \$911,901 in June. Machine tool exports in July totaled 5176 in number with a value of \$503,283, as against 7567, with a value of \$443,645 in June.

Steel rails constituted the greatest export movement



### Iron and Steel Exports by Countries (In Gross Tons)

	Seven Months Ended			Seven Months Ended	
	July, 1923	July, 1923		July, 1923	July, 1923
<b>Plates:</b>					
Canada .....	6,999	64,408	Canada .....	3,643	23,738
Cuba .....	122	620	Cuba .....	1,229	8,461
S. America .....	119	815	Philippine Islands .....	653	4,246
Mexico .....	87	464	Mexico .....	560	3,837
Philippine Islands ...	45	167	Argentina .....	429	3,346
<b>Black Steel Sheets:</b>					
Canada .....	4,007	35,972	Colombia .....	341	3,552
Japan .....	2,368	18,827	<b>Tin Plate:</b>		
Argentina .....	275	1,639	Canada .....	2,980	17,098
Cuba .....	166	1,135	British India .....	2,928	2,931
Philippine Islands ...	54	160	China .....	1,873	5,797
<b>Galvanized Wire:</b>					
Japan .....	1,864	13,467	Japan .....	1,205	16,143
Brazil .....	1,282	5,589	Argentina .....	933	3,085
Canada .....	954	9,299	Cuba .....	769	3,197
Argentina .....	659	9,263	Hong Kong .....	683	1,944
Chile .....	615	3,524	Uruguay .....	483	1,956
Australia .....	346	3,882	Mexico .....	224	1,260
Cuba .....	294	1,609	Chile .....	213	1,190
Mexico .....	248	2,071	Italy .....	...	2,264
<b>Barbed Wire:</b>					
Cuba .....	1,495	6,481	<b>Steel Rails:</b>		
Australia .....	1,053	5,134	Cuba .....	8,202	27,250
Brazil .....	1,011	6,303	Canada .....	6,776	27,159
British South Africa ...	844	4,030	Japan .....	3,961	44,781
Colombia .....	630	3,068	Kwang Tung (leased territory) ..	1,960	11,143
Central America .....	570	2,172	Colombia .....	861	2,109
Mexico .....	567	2,047	Philippine Islands ...	382	2,625
Canada .....	25	4,416	Argentina .....	325	834
West Indies .....	...	6,153	Mexico .....	216	2,571
Argentina .....	...	6,410	Honduras .....	139	7,332
<b>Galvanized Sheets:</b>					
Canada .....	3,643	23,738	Chile .....	...	2,116
Cuba .....	1,229	8,461	Chosen (Korea) ..	...	8,754
Philippine Islands .....	653	4,246	New Zealand .....	...	400
Mexico .....	560	3,837			
Argentina .....	429	3,346			
Colombia .....	341	3,552			

in July, with a total of 24,521 tons, and also for the seven months ended with July, with a total of 142,332 tons. Cuba was the leading export market in July for steel rails, taking 8202 tons, while Canada came second

### Machine Tool Exports, by Number and Value

	June, 1923		July, 1923	
	Quantity	Value	Quantity	Value
Lathes .....	64	\$96,385	70	\$96,780
Boring and drilling machines .....	307	44,710	204	67,505
Planers, shapers and slotters .....	17	26,855	16	32,538
Bending and power presses .....	21	10,703	14	19,030
Gear cutters .....	89	9,971	7	20,371
Milling machines .....	29	34,830	13	17,913
Thread-cutting and screw machines .....	54	36,384	27	27,913
Punching and shearing machines .....	300	14,890	28	16,666
Power hammers .....	9	7,158	74	20,005
Rolling machines .....	2	485	13	6,019
Sharpening and grinding machines .....	1,824	72,034	1,452	87,102
Chucks, centering, lathe, drill and other metal-working tools .....	3,818	24,344	2,271	36,504
Pneumatic portable tools .....	1,033	64,896	987	54,946
Total .....	7,567	\$443,645	5,176	\$503,283

with 6776 tons. The second largest export movement of July consisted of boiler tubes and welded pipe, the total for the month being 17,671 tons, while steel bars with a total of 14,531 tons ranked third, and tin plate, 13,029 tons, fourth. Beginning with July the Bureau of Foreign and Domestic Commerce has separated iron and steel bars instead of consolidating them as was done previously.

Of the imports, the heaviest item was, as usual, pig

### Imports of Iron and Steel in Gross Tons (Monthly Averages)

	Total Imports	Pig Iron	Ferro-alloys	Manganese Ore and Oxide*
1909 to 1913, incl. ....	26,505	114,132	...	...
1914 to 1918, incl. ....	23,351	4,645	3,281	147,155
1919 to 1921, incl. ....	23,901	5,708	3,710	87,115
1922 .....	59,545	31,954	9,117	31,204
January, 1923 .....	120,078	83,935	5,120	829
February .....	67,704	35,793	9,234	4,636
March .....	106,197	72,344	9,030	12,799
April .....	77,903	36,371	7,221	14,071
May .....	75,885	39,764	10,482	12,734
June .....	68,019	30,083	12,794	36,138
Six months' average .....	85,964	49,706	8,980	13,535
July .....	53,464	10,760	12,381	23,824

\*Not included in "total imports."

†Includes ferroalloys.

‡Average for three years, 1916 to 1918, only.

### Imports of Machinery (By Value)

	July		Seven Months Ended July	
	1922	1923	1922	1923
Metal-working machine tools and parts .....	\$14,757	\$28,549	\$127,589	\$250,583
Agricultural machinery and implements .....	199,275	198,387	1,644,179	1,893,261
Electrical machinery and apparatus .....	...	20,791	...	351,161
Other power generating machinery .....	...	48,183	...	1,410,841
Other machinery .....	271,154	221,488	1,605,983	1,475,803
Vehicles, except agricultural .....	120,118	279,198	857,510	1,757,190
Total .....	\$605,304	\$796,596	\$4,235,261	\$7,138,839

iron, with a total of 19,760 tons. For the seven months ended with July the total imports of pig iron aggregated 313,900 tons. Previously the Bureau had credited an import movement of 4100 tons of pig iron to Cuba

### Exports, January, 1922, to July, 1923, Inclusive (Gross Tons)

	All Iron and Steel	Pig Iron	Semi-finished Iron Material
*Average, 1912 to 1914 .....	2,406,218	221,582	145,720
*Average, 1915 to 1918 .....	5,295,333	438,462	1,468,026
Calendar year 1919 .....	4,239,837	309,682	258,907
Fiscal year 1920 .....	4,212,732	248,126	288,766
Calendar year 1920 .....	4,961,851	317,958	216,873
Fiscal year 1921 .....	4,168,619	129,541	82,549
Calendar year 1921 .....	2,213,042	28,305	10,363
January, 1922 .....	160,920	1,043	4,683
February .....	133,975	1,430	6,627
March .....	208,843	2,724	10,002
April .....	198,830	2,750	9,376
May .....	230,062	3,897	13,091
June .....	212,295	1,996	13,178
Fiscal year 1922 .....	1,721,418	28,330	63,127
July .....	157,169	1,943	10,149
August .....	145,640	1,791	9,353
September .....	129,475	5,203	6,810
October .....	132,924	1,553	8,364
November .....	127,782	3,464	7,157
December .....	150,170	3,136	8,449
Calendar year 1922 .....	1,986,297	30,922	107,201
January, 1923 .....	123,190	2,482	10,563
February .....	133,902	2,786	7,733
March .....	163,920	2,881	11,416
April .....	177,471	1,844	11,247
May .....	203,389	1,848	12,824
June .....	171,183	2,960	9,652
Fiscal year 1923 .....	1,816,329	31,891	113,377
July .....	168,558	2,966	6,480
Seven months .....	1,141,569	17,811	69,917

\*Calendar years.

in April, but it develops that this tonnage was scrap so that this change has resulted in the revision of the pig iron and scrap import tonnages for the seven

### Imports of Iron and Steel into the United States (In Gross Tons)

	July		Seven Months Ended July	
	1922	1923	1922	1923
Pig Iron .....	18,823	19,760	45,227	313,900
Ferromanganese .....	25,841	11,314	53,134	58,049
Ferrosilicon .....	2,300	1,067	7,076	8,422
Scrap .....	9,795	14,216	38,960	130,862
Steel ingots, blooms, billets, slabs and steel bars .....	530	1,097	7,625	9,044
Rails and splice bars .....	4,077	1,126	20,435	15,650
Structural shapes .....	34	2,091	275	6,074
Boiler and other plates .....	...	2	...	484
Sheets and saw plates .....	156	224	329	932
Bar iron .....	10,131	759	11,531	5,063
Tubular products .....	...	529	...	2,742
Castings and forgings .....	...	380	...	1,796
Nails and screws .....	...	72	...	776
Tinplate .....	37	92	2,118	9,471
Bolts, nuts, rivets and washers .....	...	6	...	124
Wire rods .....	244	148	974	2,135
Round iron and steel wire .....	...	312	...	2,550
Flat wire and strip steel .....	...	224	...	755
Wire rope and insulated wire, all kinds .....	...	45	...	454
Total .....	71,971	53,464	187,684	569,287
Manganese ore .....	70,318	23,824	218,547	104,212
Iron ore .....	166,711	439,367	374,407	1,767,358
Magnesite .....	9,156	5,666	62,566	59,367

months. The greatest pig iron tonnage from any single country in July came from England, the incoming shipments being 9554 tons. For the seven months

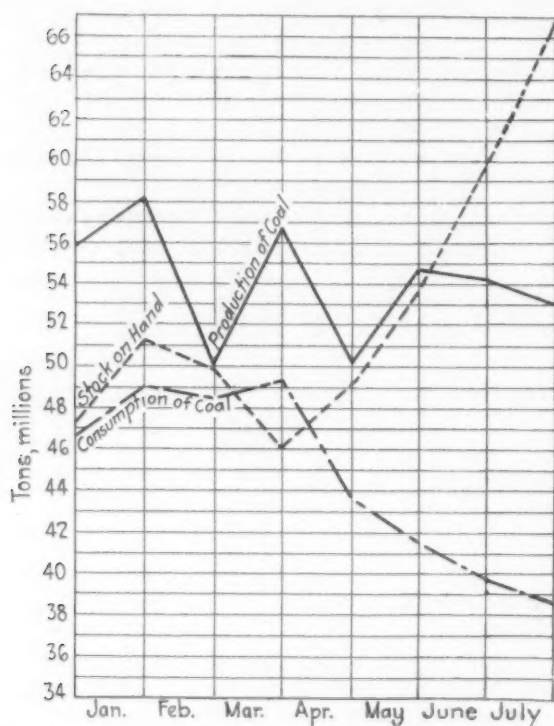
the total imports of pig iron from England amounted to 158,428 tons, or more than half of the entire pig iron imports for the period.

## FIFTY-DAY COAL SUPPLY

### National Association of Purchasing Agents Does Not Consider Outlook Alarming

The survey of industrial coal consumption for the month of July by the National Association of Purchasing Agents covering the industrial consumption of hard and soft coal in the United States and Canada indicates that the volume of business for the month of July was at about the same rate as during the preceding month. The consumption in July was slightly below that of the month of June, estimated at 783,000 tons, or a difference of about 2 per cent. For June the association recorded a decrease in business of 4.3 per cent; for May a decrease of 5 per cent, and for April a decrease of 10 per cent. The report says:

"July reflected further declines in some lines of



Stocks, Production and Consumption of Coal in United States and Canada in 1923

business, other lines remained stationary and a considerable number recorded an increase. Of the total number of industrial coal consumers reporting for the month of July, 53.6 per cent showed further decreases, 16.4 per cent remained stationary, and 30 per cent recorded increases over the preceding month. These figures indicate that the downward trend of business has reached bottom, and that, as stated last month, there is a possibility that the beginning of an upward swing will be recorded for the month of August.

"The lines on the chart showing the consumption and stocks of coal are drawn from data supplied from all parts of the United States and Canada by commercial consumers of coal, and represent all lines and branches of business industry. The line showing the production of coal is drawn from figures given out by the U. S. Geological Survey. The chart includes both bituminous and anthracite coal, and covers the total stocks in the hands of commercial consumers, the total tonnage consumed and the total production by months. (Coal consumed by the householder and his stocks are not included.)

"The stocks of hard and soft coal in commercial consumers' bins on Aug. 1 were 7,214,000 tons greater

than on July 1. Expressed in number of days, the supply on Aug. 1, based on the July consumption, was sufficient to meet the industrial requirements of the United States and Canada for a period of 53 days on the average.

"The estimated total production of hard and soft coal in the United States during the month of July was about 1,247,000 tons less than during the month of June.

"The United States Geological Survey shows that consumers of soft coal in the United States held in storage piles on July 1 approximately 45,000,000 tons and that the rate of consumption in June was about 9,500,000 tons per seven-day week. This would indicate a supply sufficient for 33 days on the average on July 1. We reported for the same period that the commercial consumers had in storage approximately 59,723,000 tons, this figure including both hard and soft coal for the United States and Canada, and according to our figures the stock was sufficient to last 45 days on the average.

### Market Conditions

"The bituminous market remained soft and sluggish during the month of August. The month of September, however, will most likely find the market in an unsettled condition, providing that there is a suspension of work in the anthracite region, and prices may temporarily show an upward tendency.

"If a suspension does come in the anthracite region

### Stocks on Hand

	Net Tons
May 1, 1923.....	49,022,000
June 1, 1923.....	53,669,000
July 1, 1923.....	59,723,000
Aug. 1, 1923.....	66,937,000

### Consumption

Month of April.....	43,659,000
Month of May.....	41,532,000
Month of June.....	39,720,000
Month of July.....	38,937,000

### Production

Month of April.....	50,209,000
Month of May.....	54,735,000
Month of June.....	54,309,000
Month of July.....	53,062,000

(Of the July production 44,673,000 tons was soft coal and 8,389,000 tons was hard coal.)

The figures shown for stocks and consumption are estimates based on reports supplied monthly by consumers.

it should not result in a fuel shortage, for the reason that bituminous coal, coke and fuel oil may be substituted for anthracite coal. Another factor to be taken into account is that the bituminous mines and coke ovens have ample capacity to meet the additional demand that would result due to a suspension in the anthracite region. We should also in this connection take into consideration that the lake season is drawing to a close, and that coal that has been going to the upper lake docks will soon have to find other markets.

"The production of coke continues to show a downward trend, but the market remains soft with coke in easy demand. This, however, may change if there is a suspension of work in the anthracite mines. If a suspension occurs, coke will then under such circumstances, to a considerable extent, be substituted for anthracite, and if the suspension is prolonged, coke prices will stiffen. This will be particularly true of the East.

"The association desires reports on stocks and consumption of coal from all industrial consumers, and is not confining its efforts to its membership, but asks that all who are willing to cooperate send the names of their purchasing agents to Mark Kuehn, chairman, national fuel committee, 10600 Quincy Ave. S. E., Cleveland."



### Rogers, Brown & Co. Acquire Naylor & Co.'s Business

Naylor & Co., Inc., 100 Broad Street, New York, announce the taking over of their business by Rogers, Brown & Co., 30 Church Street, New York. Naylor & Co. have been for many years the American representatives of Naylor, Benzon & Co., Ltd., London, England, dealers in foreign ores, pyrites, pig iron and metals, and Rogers, Brown & Co. now succeed them as correspondents in the United States of the London firm. G. F. Murray, for many years associated with Naylor & Co., will join Rogers, Brown & Co. in their foreign trade department. Rogers, Brown & Co. also make announcement of the change, and in addition state that they have appointed Naylor, Benzon & Co., Ltd., as their London representatives.

The famous London firm has a history of a century and a quarter, its stationery carrying the legend, "Established prior to 1800." Naylor & Co. were for many years a conspicuous figure in the iron ore, pig iron and metal trades in the United States. The personnel of the Pittsburgh office of the firm is well remembered by iron and steel men of the Middle West. In the days of Charles S. Guthrie, a Pittsburgh partner, who in 1899 became the first president of the American Steel Hoop Co., the business through the Pittsburgh office had wide ramifications. In the same year Samuel G. Cooper and C. F. Banning, with Mr. Guthrie as a partner, organized Banning, Cooper & Co., Ltd., which took over the Pittsburgh business of Naylor & Co. Some of Naylor & Co.'s large deals in Bessemer pig iron and Bessemer steel billets are particularly well remembered. The advance in pig iron that came in 1895, after two dragging years following the panic of 1893, was marked by several noteworthy Naylor transactions. One of these was the sale of large blocks of Bessemer pig iron to the Carnegie Steel Co. In the Eastern trade in iron ore, pyrites and pig iron in the early nineteen-hundreds and later, Naylor & Co. were important factors.

### Solder Pot With Automatic Heat Control

A new electric solder pot with automatic heat control, for heating babbitt, white metal, wax and other materials which are slow conductors of heat, has been placed on the market by J. D. Wallace & Co., 1405 West Jackson Boulevard, Chicago.

Elimination of overheating and therefore of oxidation of the solder and elimination of time lost in watching the pot are advantages claimed. When the



Proper Head Is Maintained Automatically. Elimination of overheating and waste of time in watching the pot are advantages

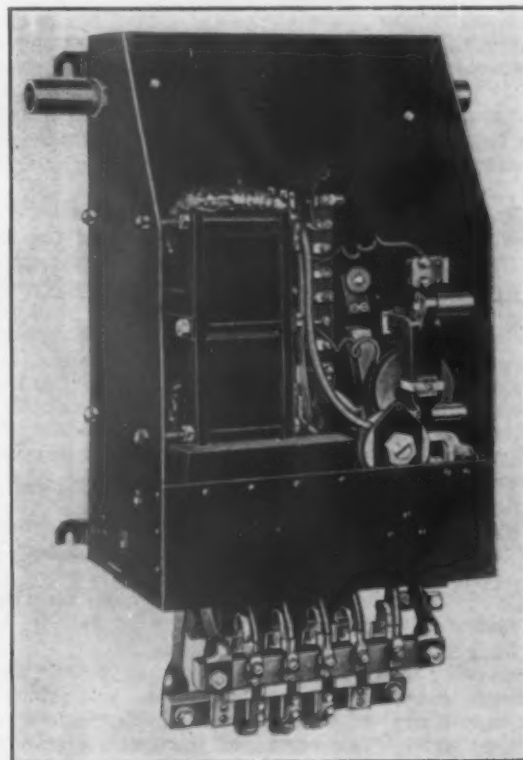
solder has been heated to 600 deg. Fahr. an automatic control goes into action, maintaining a uniform temperature. This control is said to be an adaptation of the principle used in the steam gage. A volatile substance actuates a Bourden tube which makes and breaks the electric current, regulating the temperature of the pot.

The capacity of the pot is for 15 lb. of solder, which it is said to heat to 600 deg. Fahr. in 25 minutes. Quick action in heating is attributed to a 900-watt heating element which is built around the container. The pot weighs only 13 lb. and may be carried and placed conveniently to the work. It operates on either 110 or 220-volt alternating current or on direct current.

### New Device for Starting A. C. Motors

A type ZK manual automatic compensator, which is claimed to eliminate the objectionable features of the so-called hand compensator and to include all the advantages, except remote control, of the automatic compensator, has been placed on the market by the Electric Controller & Mfg. Co., Cleveland. The device is designed to automatically accelerate the motor without danger to the motor or to the driven machinery, and in case of overload, voltage failure or of single phasing the motor is protected.

In operating the device the handle is merely thrown to the starting position, and left alone. This connects



Manual Automatic Compensator. The motor is accelerated automatically and is fully protected

the motor through transformers in the compensator to the line, and after the motor has accelerated to a speed where it can be safely thrown across the line a relay operates a mechanism in the compensator, which automatically throws the device from the starting to the running position. It is emphasized that by means of the device a motor may be started as easily as throwing a knife switch.

At the top of the compensator there is a panel with inverse time element overload protection, obtained by means of an expansion wire overload device. No-voltage protection is also provided, so that in case of overload or failure of voltage, it is necessary to go back to the compensator and throw the handle to start the motor again.

Development of a power site has begun at Hemmings Falls, near Drummondville, Que., on the St. Francis River. The contract for construction has been let to the Foundation Co., Ltd., of Canada, which is associated with the Foundation Co. of New York. The design and construction is in charge of J. S. H. Wurtele, plant manager of the Southern Canada Power Co., Ltd., and the purchase of building materials will be looked after by the contractors. The purchase of machinery and equipment will be made through the purchasing department of Southern Canada Power Co., L. C. Haskell, Coristine Building, Montreal. At Hemmings Falls it is proposed to develop 30,000 hp.

The Society of Automotive Engineers will hold its annual meeting in Detroit, Jan. 22 to 25, 1924, simultaneously with Detroit's automobile show. Meetings will be held in the General Motors Building.

# BLAST FURNACE SLAG

## Desulphurizing Power of Certain Kinds Based on Solubility of Calcium Sulphide

"The Desulphurizing Power of Iron Blast Furnace Slags" is the subject of a paper to be presented by Richard S. McCaffery, professor of metallurgy, University of Wisconsin, and Joseph F. Oesterle, assistant professor of metallurgy, before the Montreal meeting of the American Institute of Mining and Metallurgical Engineers, Friday, Aug. 30. It contains the report of an investigation to determine the quality of different iron blast furnace slags as desulphurizing agents, and the possibility of using in the blast furnace materials of higher sulphur content than those at present employed. In such a case, higher sulphur iron ores for pig iron and cokes containing more sulphur than usual could be used with the attendant result of the economical manufacture of iron and steels containing less sulphur than usual.

The authors state that it is generally assumed that the sulphur which reaches the lower part of the iron blast furnace is removed from the iron in the form of calcium sulphide because of its forming a combination with the lime. Sulphur as it comes into the blast furnace is usually in combination with iron or manganese in the ore or as a carbide compound in the coke. Iron and manganese sulphides are more soluble in iron than calcium sulphide but, as the latter is more soluble in the slag, this tends to free the metal from sulphur. The reaction which takes place requires a high temperature and strongly reducing conditions in the presence of lime.

The authors then discuss at some length the scientific work on the constitution, fusibility and viscosity of blast furnace slags by Vogt, Akerman, Rankin and Wright, Feild and Royster, giving diagrams by which the results of the present investigation can be coordinated with some of those mentioned.

Following this, there is a discussion of the solubility of calcium sulphide in slag constituents. The principal constituents involved were anorthite, gehlenite and calcium bisilicate. The values of the calcium sulphide

solubility which were determined are given in the following table:

Scrap.—Carbon, 0.15 per cent; phosphorus, 0.04 per cent; silicon, 0.03 per cent; manganese, 0.70 per cent; sulphur, 0.06 per cent.

### No. 2 Furnace with McKune Ports at Hamilton, Ontario Record for June, 1922

Number of heats.....	90
Total charge, net tons.....	8,566
Ingots produced, net tons.....	7,518
Average charge per heat, net tons....	95.18
Average production per heat, net tons.	83.53
Average yield of ingots per heat, per cent. ....	87.77
Average time of heats.....	7 hr. 55 min.
Average time of charging.....	3 hr.
Total time taken when making up between heats.....	0.45 hr.
Total delays for month.....	13 hr. 45 min.
Total coal used, net tons.....	1,557
	414 lb. per ton of ingot
Percentage of hot metal, per cent....	35
Cold metal, per cent.....	65
Outlet temp. before waste heat boiler and after valve, deg. Fahr.....	900
Length of life of roof, heats.....	350 to 400
Length of life of ports, heats.....	250 to 300
Side walls—back, heats.....	250 to 300
Side walls—front, heats.....	150 to 200

### Average for Three Furnaces—October, 1922

Fuel practice, lb.....	501
Total B.t.u. per ton ingots.....	6,920,814
Pig metal (hot), per cent.....	35
Average size heats, tons.....	80
Average time, heats.....	9 hr. 30 min.
Average boiler hp. at waste-heat boiler	348 per hr.
Fuel equivalent of steam at waste-heat boiler, per ton of steel, lb.....	165
Net equivalent fuel per ton of steel, lb.	336

### Comparison of Old Type with McKune Type

	Old Design	McKune Design, April, 1922
Average weekly tonnage, tons..	1,110	1,475
Fuel per ton, lb.....	590	495
B.t.u. per ton.....	8,250,000	6,900,000
Number of heats per week.....	14	18.7
Tonnage per heat.....	79.1	79.1
Time of heat.....	11 hr. 10 min.	8 hr. 25 min.
Coal gasified per hour, lb.....	4,160	4,660
Tonnage increase, per cent.....	....	33
Fuel saving, per cent.....	....	15

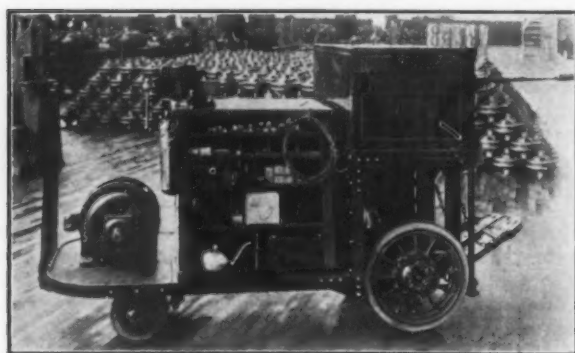
### Bethlehem Steel Co. (Two Months)

	Old Design	McKune Design
Average heats per week.....	13.0	18.1
Tons per heat.....	78	78
Fuel per ton, lb.....	603	487
Tonnage increase, per cent.....	....	39
Fuel saving, per cent.....	....	19

## Truck for Emergency Breakdown Service

An electric truck for use in industrial plants to carry equipment for repairs in the case of breakdowns when the services of millwrights or electricians are required, has been brought out by the Elwell-Parker Electric Co., Cleveland.

Having an assembly of first aid equipment ready to



Special Truck for Break Down Service. The platform carries repair parts, tools, vise and other emergency material

dispatch at a moment's notice when a break necessitates a shutdown, has been the practice in some plants, the standard type of electric truck being used for the purpose. The truck illustrated, made special for this service, is equipped with a steel and wood case which occupies about two-thirds of the platform and carries an assortment of repair parts, such as belting, belt

fasteners, lamp bulbs, carbons, bushings, fuses, brushes, etc., and a supply of oil and grease. The balance is reserved for a motor, tool-kit and fire extinguishers. A pipe vise is mounted on the partitioned rack and there is room for one or two repair men to ride on the platform. The truck can be loaded with this emergency equipment and kept ready for instant departure from the repair or maintenance department. It can be driven at three times the walking speed.

The truck is driven by a battery carried in a large compartment over large rubber-tired drive wheels and steers on four wheels so that, it is stated, it can usually be driven to any point at which it is wanted around a plant. It is equipped with an electric horn and is fool-proof, so that it does not require an experienced operator. It cannot be started unless the operator is standing on the pedals, and will stop within its own length when he steps off.

## Steel & Tube Company Suit Postponed

CHICAGO, Aug. 25.—The hearing in the circuit court here on the petition filed Aug. 8 by the Allied Chemical & Dye Corp., New York, to prevent distribution among the Steel & Tube Co. of America stockholders of the proceeds of the sale of its properties to the Youngstown Sheet & Tube Co., did not come up this week as was expected. The defendants will file a petition asking that the case be transferred to the United States District Court of Northern Illinois.

Foreign orders from South America and Australia for motor trucks, with the right-hand drive have been received by the Springfield, Ohio, works of the International Harvester Co. Production schedule is now 35 trucks a day.



# First Half Pig Iron Production Largest on Record

Special Statistical Bulletin No. 4 of the American Iron and Steel Institute shows that the production of pig iron in the United States for the first half of 1923 amounted to 21,016,475 tons, of which the production of coke pig iron, including ferroalloys made with electricity, was 20,874,240 tons, the largest tonnage for any half year in the history of the industry. The next

largest was 20,826,914 tons in the second half of 1918. The total for the year 1918 was 39,054,644. In the record year, 1916, when the production was 39,434,797, the production for the first half was 19,619,522. The production of charcoal pig iron in six months of 1923 was only 133,469 tons and of anthracite iron, 8766 tons. No anthracite pig iron was produced in 1922.

## HALF-YEARLY OUTPUT OF PIG IRON BY STATES.

### HALF-YEARLY PRODUCTION OF ALL KINDS OF PIG IRON.

States.	Blast furnaces.*				Production—Gross tons. (Includes spiegeleisen ferro-mang., ferro-silicon, ferro-phosphorus, etc.)		
	In blast Dec 31, 1922.	June 30, 1923.			First half of 1922.	Second half of 1922.	First half of 1923.
		In.	Out.	Total.			
Massachusetts.....	1	0	1	1	.....	1,084	1,309
Connecticut.....	0	0	2	2	.....	.....	.....
New York.....	15	24	4	28	833,488	938,837	1,489,701
New Jersey.....	1	2	2	4	.....	.....	.....
Pennsylvania.....	90	125	28	153	4,339,560	5,392,228	7,794,398
Maryland.....	4	5	1	6	.....	.....	.....
Virginia.....	4	6	11	17	140,885	275,106	446,797
Alabama.....	25	30	13	43	963,019	1,267,600	1,460,813
Georgia.....	0	0	2	2	.....	.....	.....
Texas.....	0	0	1	1	.....	.....	.....
West Virginia.....	3	4	1	5	240,822	219,489	355,294
Kentucky.....	1	2	5	7	.....	.....	.....
Mississippi.....	0	0	1	1	.....	.....	.....
Tennessee.....	6	7	10	17	17,585	106,322	142,879
Ohio.....	58	67	13	80	2,898,846	3,585,316	4,978,327
Illinois.....	18	24	2	26	1,237,877	1,387,367	1,899,231
Indiana.....	14	16	0	16	.....	.....	.....
Michigan.....	13	12	1	13	1,252,733	1,473,994	1,825,759
Wisconsin.....	4	5	2	7	.....	.....	.....
Minnesota.....	3	3	0	3	102,800	278,221	396,958
Missouri.....	0	0	3	3	.....	.....	.....
Iowa.....	0	0	0	0	163,387	103,329	225,009
Colorado.....	3	3	2	5	.....	.....	.....
Total.....	263	335	105	440	12,191,011	15,028,893	21,016,475

\* Completed and rebuilding.

### HALF-YEARLY PRODUCTION OF COKE PIG IRON.\*

Connecticut.....	0	0	0	0	.....	.....	.....
New York.....	15	24	3	27	833,488	939,159	1,489,701
New Jersey.....	1	2	2	4	.....	.....	.....
Pennsylvania.....	90	124	24	148	4,339,560	5,392,228	7,785,632
Maryland.....	4	5	1	6	.....	.....	.....
Virginia.....	4	6	11	17	140,885	275,106	446,797
Georgia.....	0	0	1	1	.....	.....	.....
Texas.....	0	0	1	1	.....	.....	.....
Alabama.....	24	28	12	40	949,566	1,255,839	1,448,404
West Virginia.....	3	4	1	5	240,822	219,489	355,294
Kentucky.....	1	2	5	7	.....	.....	.....
Tennessee.....	6	6	8	14	17,585	106,322	140,762
Ohio.....	58	67	13	80	2,898,846	3,585,316	4,978,327
Illinois.....	18	24	2	26	1,237,877	1,387,367	1,899,231
Indiana.....	14	16	0	16	.....	.....	.....
Michigan.....	13	12	0	13	1,256,880	1,463,838	1,992,703
Wisconsin.....	4	4	2	6	.....	.....	.....
Minnesota.....	3	3	0	3	.....	.....	.....
Missouri.....	0	0	2	2	190,716	264,284	437,380
Iowa.....	0	0	0	0	.....	.....	.....
Colorado.....	3	3	2	5	.....	.....	.....
Total.....	251	322	90	412	12,106,225	14,888,948	20,874,240

\* Includes pig iron and ferro-alloys made with electricity, electricity and coke, etc.

### HALF-YEARLY PRODUCTION OF ANTHRACITE AND MIXED ANTHRACITE AND COKE PIG IRON.

Pennsylvania.....	0	1	2	3	.....	.....	8,766
Total.....	0	1	2	3	.....	.....	8,766

### HALF-YEARLY PRODUCTION OF CHARCOAL PIG IRON.

Massachusetts.....	1	0	1	1	.....	.....	.....
Connecticut.....	0	0	2	2	.....	762	1,309
New York.....	0	0	1	1	.....	.....	.....
Pennsylvania.....	0	0	2	2	.....	.....	.....
Alabama.....	1	2	1	3	.....	.....	.....
Georgia.....	0	0	1	1	13,453	11,761	14,526
Tennessee.....	0	1	2	3	.....	.....	.....
Mississippi.....	0	0	1	1	.....	.....	.....
Michigan.....	9	8	1	9	.....	.....	.....
Wisconsin.....	1	1	0	1	71,333	127,422	117,634
Missouri.....	0	0	1	1	.....	.....	.....
Total.....	12	12	13	25	84,786	139,945	133,469

### TOTAL PRODUCTION OF PIG IRON ACCORDING TO FUEL USED.

Coke*.....	251	322	90	412	12,106,225	14,888,948	20,874,240
Anthracite†.....	0	1	2	3	.....	.....	8,766
Charcoal.....	12	12	13	25	84,786	139,945	133,469
Total.....	263	335	105	440	12,191,011	15,028,893	21,016,475

\* Includes pig iron and ferro-alloys made with electricity, electricity and coke, etc.

† Includes mixed anthracite and coke pig iron.

## HALF-YEARLY OUTPUT OF PIG IRON BY GRADES.

### HALF-YEARLY PRODUCTION OF BASIC PIG IRON.

States.	First half of 1922.	Second half of 1922.	First half of 1923.
New York, New Jersey.....	428,536	385,097	508,343
Pennsylvania—Allegheny County.....	1,248,060	1,875,825	1,864,180
Other counties.....	1,100,324	1,463,217	2,340,889
West Virginia, Alabama, Kentucky.....	641,200	691,170	819,848
Ohio.....	1,257,315	1,424,495	2,040,027
Indiana.....	1,534,969	1,722,927	2,932,602
Michigan, Wisconsin, Minnesota, Colo.....	179,472	188,160	375,434
Total.....	6,389,876	7,451,491	10,181,323

### HALF-YEARLY PRODUCTION OF BESSEMER AND LOW-PHOSPHORUS PIG IRON.

Connecticut, New York.....	50,541	91,975	189,407
Pennsylvania.....	1,516,802	1,865,347	2,754,665
Md., West Va., Ky., Ala., Tenn.....	193,115	232,927	471,270
Ohio.....	1,169,416	1,547,878	2,138,361
Indiana, Illinois, Iowa, Wis., Colorado.....	552,730	562,472	819,284
Total.....	3,512,604	4,300,599	*6,372,987

\* Includes 140,251 tons of low-phosphorus pig iron.

### HALF-YEARLY PRODUCTION OF FOUNDRY PIG IRON AND FERRO-SILICON.

Massachusetts, Connecticut.....	.....	870	1,309
New York, New Jersey.....	308,129	353,606	587,348
Pennsylvania.....	305,792	296,126	506,990
Maryland, Va., West Va., Ky., Tenn.....	36,853	168,283	320,925
Alabama.....	459,563	708,348	731,271
Ohio.....	219,069	280,172	443,335
Indiana, Illinois.....	62,192	119,096	138,732
Michigan.....	130,763	295,685	313,013
Wisconsin, Minnesota, Iowa, Colorado.....	86,868	125,016	162,512
Total.....	1,629,229	2,347,202	*3,205,435

\* Includes 134,029 tons of ferro-silicon.

### HALF-YEARLY PRODUCTION OF MALLEABLE PIG IRON.

New York.....	35,348	66,462	161,042
Pennsylvania, Maryland.....	17,945	45,208	50,118
Ohio.....	195,036	287,811	296,138
Indiana, Illinois, Mich., Wis., Minn.....	179,669	224,016	298,073
Total.....	427,998	623,497	814,371

### HALF-YEARLY PRODUCTION OF FORGE PIG IRON.

New Jersey, Pennsylvania.....	65,845	56,184	118,513
Alabama.....	10,181	11,996	16,436
Ohio.....	26,858	43,144	50,676
Total.....	102,884	111,326	185,625

### HALF-YEARLY PRODUCTION OF SPIEGELEISEN AND FERRO-MANGANESE.

Pennsylvania, Maryland, Ala., Tenn.....	96,553	127,003	188,835
Total.....	96,553	127,003	*188,835

\* Includes 124,025 tons of ferro-manganese and 64,810 tons of spiegeleisen.

### HALF-YEARLY PRODUCTION OF OTHER GRADES.

New York, New Jersey.....	4,269	33,333	25,143
Pennsylvania.....	1,443	3,029	5,181
Maryland, Va., West Va., Tenn., Ala.....	14,856	24,058	20,478
Ohio.....	1,152	1,816	9,790
Indiana, Illinois, Minnesota.....	10,143	5,539	7,307
Total.....	31,865	67,775	67,999

### PIG IRON MADE FOR SALE OR FOR USE OF MAKERS IN THE FIRST HALF OF 1923.

Grades.	For sale.	For maker's use.	Total Gross tons.
Basic.....	1,108,965	9,072,358	10,181,323
Bessemer and low-phosphorus.....	500,490	5,872,497	6,372,987
Foundry, including ferro-silicon.....	2,954,936	250,499	3,205,435
Malleable.....	773,983	40,388	814,371
Forge or mill.....	103,611	82,014	185,625
Ferro-manganese.....	41,512	82,513	124,025
Spiegeleisen.....	33,193	31,617	64,810
All other grades.....	33,629	34,270	67,999
Total.....	5,550,319	15,466,156	21,016,475

### National Safety Council Program

The program of the twelfth annual safety congress of the National Safety Council at Buffalo, Oct. 1 to 5, has been announced. The Metals Section will convene on Wednesday and Thursday mornings, and will be presided over by T. H. McKenney, superintendent of labor and safety, Illinois Steel Co., Chicago. Walter Hart, Jones & Laughlin Steel Corporation, Pittsburgh, will be vice-chairman, and J. A. Northwood, Cambria plant, Bethlehem Steel Co., Johnstown, Pa., acting secretary. The following papers will be presented:

"Handling Material in a Foundry," by Benjamin F. Faunce, superintendent steel car department, Cambria plant, Bethlehem Steel Co., Johnstown, Pa.

"Safety on the Plant Railway," by C. F. Dullenkopf, superintendent of yards, Bethlehem plant, Bethlehem Steel Co., Bethlehem, Pa.

"Fire Protection in Steel Mills and Foundries," by J. M. Woltz, Youngstown Sheet & Tube Co., Youngstown, Ohio.

"Relation of Medical and Safety Departments," by G. H. McKinstry, M. D., Spang-Chalfant Co., Pittsburgh.

In a general round table meeting on Thursday afternoon "A Scene in a Foundry," a playlet by workers of the Edgar Thompson Works of the Carnegie Steel Co., Braddock, Pa., will be presented, and there will be general discussion of "Getting Safety Across to the New Man—The Non-English Speaking Men and Men Working in Scattered Small Groups." In a general session Monday afternoon one of the principal speakers will be Royal B. Meeker, commissioner Pennsylvania Department of Labor and Industry, who will discuss "International Aspects of the Safety Problem." A session of the Automotive Section will be devoted to a general discussion of "Punch Press Safeguarding" and "Forging Hazards." In the session of the Engineering Section Wednesday afternoon the report of the Committee on Flywheels, E. B. Tolsted, Fonda-Tolsted Co., Chicago, chairman, is expected to be of particular interest.

### Plans of Quad City Foundrymen

The board of directors of the Quad City Foundrymen's Association held its first meeting after the summer recess at the Rock Island Club, Aug. 22, with 100 per cent attendance. A program of work for the coming year was outlined and it was agreed that the following major subjects should be given special attention during the year:

**Pig Iron:** Including technical discussion on charcoal pig iron, coke pig iron and Mayari pig iron.

**Coke:** a technical discussion on the production of coke by both the by-product and beehive process. Also a comparison of coke made from Eastern and Western coals.

**Industrial Education:** This subject is in the hands of a special committee, Fred Kirby, Marseilles Works, East Moline, chairman. It is proposed to do constructive work on the matter of apprenticeships and develop interest of the school authorities and the factories in industrial education.

**Steel:** All processes. Several of the best authorities in the country have expressed a willingness to handle this topic.

**Cupola:** New and improved methods of cupola practice; speaker to be a prominent equipment manufacturer.

**Molding Sand:** This will be taken up after the first of the year after a special committee, Henry Bornstein, Deere & Co., chairman, has had opportunity to make a report. It is also planned to get one of the best sand men from the Milwaukee district to cover this subject.

**Costs:** While all plants naturally have their own cost system, it is thought that much good can be accomplished by educating the foremen in the plant to appreciate the value of the cost record and have them realize that in order to get correct costs they must give the office correct information regarding time and materials used.

**Malleable Iron:** including the melting of gray iron in an air furnace and also electric furnaces.

Other subjects suggested for consideration through the year include piece rates, inspection and where the foundry's responsibility ceases, safety first, annealing on malleable iron, purchasing scrap, chilled work, green sand cores, electric furnaces, molding machines, sand handling machines, centrifugal process of molding, sand-throwing machines.

The first meeting of the year will be held Sept. 17 at the LeClaire Hotel.

The board of directors elected at the May meeting for the ensuing year is as follows: President, A. E. Hageboeck, Frank Foundries Corporation, Moline, Ill.;

vice-president, John Ploehn, French & Hecht, Davenport; secretary and treasurer, H. C. Cooper, John Deere Harvester Works, East Moline, Ill. Directors, A. K. Reading, Zimmerman Steel Co., Bettendorf, Iowa; H. A. Soverhill, Davenport Locomotive Works, Davenport; Leon Mitchell, Rock Island Stove Co., Rock Island, Ill.; Martin Carlson, Barnard & Leas Co., Moline; P. T. Bancroft, John Deere Harvester Works, East Moline.

### Iron and Steel Institute's Milan Meeting

The technical program for the fall meeting of the Iron and Steel Institute at Milan, Italy, Sept. 27 and 28, is as follows:

"Alloys in the Ternary System Iron-Chromium-Carbon," by C. R. Austin, E. D. Campbell, W. L. Fink and J. F. Ross.

"The Iron-Iron Carbide Equilibrium in Dry Hydrogen at 950 deg. C.," by E. D. Campbell, J. F. Ross and W. L. Fink.

"The Relative Efficiency of Dry and of Moist Hydrogen on the Decarburization of Steel at 950 deg. C., and the Effect of Hydrogen on the Phosphorus Content," by E. D. Campbell, J. F. Ross and W. L. Fink.

"A Note on Coarse Corrugation in Mild Steel Sheets," by C. A. Edwards and L. B. Pfeil.

"The Iron and Steel Industry of Italy," by G. E. Falck.

"The Complex Action of Manganese and of Other So-called Deoxidizing Agents in the Manufacture of Steel," by F. Giolitti.

"The Change Points in Some Nickel-Chromium Steels," by W. T. Griffiths.

"The Influence of Nickel and Chromium Upon the Solubility of Steel (in Relation to Corrosion)," by W. H. Hatfield.

"The Iron Ore Mines of Nurra (Sardinia)," by Cesare Martelli and Tito Sotgia.

"The Morphology of Pro-Eutectoid Cementite," by A. Portevin.

"The Corrosion Cracking of Steel Under the Influence of Internal Stresses," by A. Portevin.

"The Effect of Low Temperature Annealing on Some Mechanical Properties of Cold Drawn Steels," by S. H. Rees.

"Theory and Practice of Steel Refining," by H. Styri.

"The Manufacture of Heavy Steel Castings from Small Converters," by C. Vanzetti.

"Grain Growth in Iron and Steel," by H. C. Wang.

At the conclusion of the meeting visits have been arranged to Florence, Rome, Piombino, Leghorn, Genoa and Turin.

### Chicago Machinery Club Enlarges

The Machinery Club of Chicago, Machinery Hall, Clinton Street and West Washington Boulevard, Chicago, has taken the remainder of the fourth floor of that building, thereby increasing its floor space 25 per cent. The additional space which is now being remodeled to conform with the appointments in the remainder of the club, will include billiard and pool tables, a barber shop and toilet and shower baths. The room now occupied by the billiard and pool tables will be added to the dining hall, increasing its capacity about 70 per cent. The club is located in what is known as the "machinery district" of Chicago, where all of the important machine tool dealers are grouped, and is enjoying a steady growth. More than two hundred members and guests have luncheon in the club rooms daily and the rapid increase in patronage makes enlargement of facilities imperative. The active membership of the club is now nearly one thousand.

### Automobile Production in July

Although falling below the figures for each of the four preceding months, July provided the fifth successive month when more than 300,000 motor vehicles were produced. Figures of the Department of Commerce for the first seven months of 1922 and 1923, divided between passenger cars and trucks, are given in the table. The total for seven months in 1923, amounting to 2,126,895 passenger cars and 227,055 trucks, exceeds by 68½ per cent the 1922 aggregate of 1,261,267 cars and 136,323 trucks. In each year trucks have numbered just under 10 per cent of the total production.

	Automobile Production			
	—Passenger Cars—		—Trucks—	
	1923	1922	1923	1922
January .....	223,706	81,693	19,398	9,416
February .....	254,650	109,171	21,817	13,195
March .....	319,638	152,959	34,681	19,761
April .....	344,474	197,216	37,527	22,342
May .....	350,180	232,431	*43,018	23,784
June .....	*337,143	263,027	*40,616	25,984
July .....	297,104	224,770	29,998	21,837

\*Revised by the Department of Commerce.



### Lift Truck for Single-Piece Loads

A lift truck, with provision for carrying its load beyond the front axle and designed for the handling of a single-piece load up to 2500 lb. by one man, has been brought out by the Elwell-Parker Electric Co., Cleveland. The platform or forks may be lowered to the floor or may be stopped at any height between upper and lower limits. The forks are shaped at the outer ends to permit their insertion beneath a



Lift Truck for Single Piece Loads Up to 2500 Lb. The forks are shaped to permit of easy insertion beneath a box or bundle

bundle, box, bale, barrel, casting or any irregular shaped piece.

The length of the forks depend upon the weight carried, as the load handled balances an equal weight of the truck back of the axle. To carry the load, a heavy axle with wide tread and equipped with large roller bearings is provided, this being mounted on dual 10 by 3 in. wheels. These as well as the rear driving wheels are steerable. The raising mechanism consists of a separate motor with worm gear reduction attached to a removable platen supported on the truck frame by three rocking links. This electric lift mechanism is simple in construction and assembled as a unit.

The propelling unit consists of a heavy-duty motor and controller direct connected through a flexible coupling to a worm and wheel with bevel pinion differential running in oil. Drive shafts with chrome vanadium universal joints and with clutch plates bolted to the outside of the wheels complete the full-floating drive axle. The drive wheels turn on 7-in. double-row ball bearings. The knuckles on both the drive and front wheels are located close to the center of the tires in order to assure easy steering and to avoid any "kick-back" at the steering handle when the tires strike floor obstructions.

Italy as an industrial machinery market has been recently studied by the Department of Commerce. Of the total imports of machinery and apparatus by Italy in 1922, valued at about 400,000,000 lire, Germany supplied one-half and the United States 7.4 per cent. An attempt was made to estimate the value of industrial machinery as distinguished from non-industrial machinery and the total for 1922 of industrial machinery is put at 280,000,000 lire. Of this Germany supplied 46.8 per cent and the United States only one-tenth as much. Switzerland supplied about 14 per cent, and Great Britain practically as much. One explanation of the German predominance is the depreciated value of the mark.

### Less Employment and Lower Wages

Figures of the Bureau of Labor Statistics, Washington, show a falling off between June and July of about 2 per cent in the number of men employed in metal working establishments, a decrease of nearly 6 per cent in the weekly payroll and a drop of almost 4 per cent in the contents of the average pay envelope.

The figures relate to 1420 establishments which in June employed 1,015,070 wage earners, with a payroll of \$30,725,626, or an average of \$30.27 per wage earner. In July the same establishments had 996,514 employees with payrolls aggregating \$28,984,283, or an average of \$29.09 per wage earner. The present average wage is 21.7 per cent higher than one year ago, although the identity of the establishments is not the same, and only half as many employees were involved in the 1922 figures.

Men engaged in car building and repairing showed the greatest increase in average wage, with 59 per cent. Iron and steel workers come next with 37.4 increase. Employees of foundries and machine shops, agricultural implement factories, electrical apparatus, hardware, stoves and steel shipbuilding plants, increased between 14 and 15 per cent.

Automobile workers showed the lowest increase, with 8.2 per cent, but they have still the highest wage rate of any of the steel working groups, and are the only one showing an increase from the June figures. At \$32.44 per week, the automobile workers have 21 per cent higher wages than the iron and steel workers, and their figure has been consistently higher than the others for some time.

Details of the report are covered in the table.

Periods	Number of Establishments	Number of Men	Week's Payroll	Average Weekly Pay	Increase in One Year
<b>Iron and Steel:</b>					
June, 1923...	176	232,563	\$6,994,531	\$39.08	
July, 1923...	176	225,479	6,037,143	26.78	37.4%
July, 1922*	125	144,211	2,810,359	19.49	
<b>Automobiles:</b>					
June, 1923...	190	274,250	8,846,767	32.26	
July, 1923...	190	265,740	8,619,994	32.44	8.2%
July, 1922*	106	146,625	4,394,135	29.97	
<b>Car Building and Repairing:</b>					
June, 1923...	217	177,489	5,351,411	30.15	
July, 1923...	217	176,036	5,157,713	29.30	59.0%
July, 1922*	101	51,122	942,349	18.43	
<b>Foundry and Machine Shops:</b>					
June, 1923...	508	148,659	4,446,203	29.91	
July, 1923...	508	149,420	4,368,926	29.24	14.3%
July, 1922*	149	55,628	1,422,561	25.58	
<b>Miscellaneous:</b>					
June, 1923...	329	182,109	5,086,714	27.93	
July, 1923...	329	179,839	4,800,507	26.69	14.9%
July, 1922*	153	101,137	2,349,715	23.23	
<b>Metal Workers:</b>					
(The five groups above)					
June, 1923...	1,420	1,015,070	30,725,626	30.27	
July, 1923...	1,420	996,514	28,984,283	29.09	21.7%
July, 1922*	634	498,723	11,919,119	23.90	

\*As present reports cover many more plants, the 1922 figures are of interest chiefly as indicating changes in wage rates.

†Agricultural implements, electrical apparatus, hardware, steel shipbuilding and stoves.

### Merger in Powdered Coal Business

An agreement has been consummated whereby the Fuller Engineering Co. will act as sole licensees in the United States and Canada for all new business of the Quigley Fuel Systems, Inc. The engineering personnel of the Quigley institution has become associated with the Fuller company. In the future the pulverized fuel equipment business of the Quigley Fuel Systems, Inc., will be conducted through the main and branch offices of the Fuller Engineering Co.

W. O. Simpson, manufacturers' agent in Mexico City, P. O. Box 1277, Apartado, Mexico, D. F., an American who has lived in Mexico for 25 years, writes that he is willing to supply information to American concerns planning business in Mexico, as regards ratings and other matters of importance in respect to potential buyers.



## NEW ENGINE LATHE

### Back Gears Placed Beneath the Spindle—Motor Mounted in Cabinet Leg—Other Features

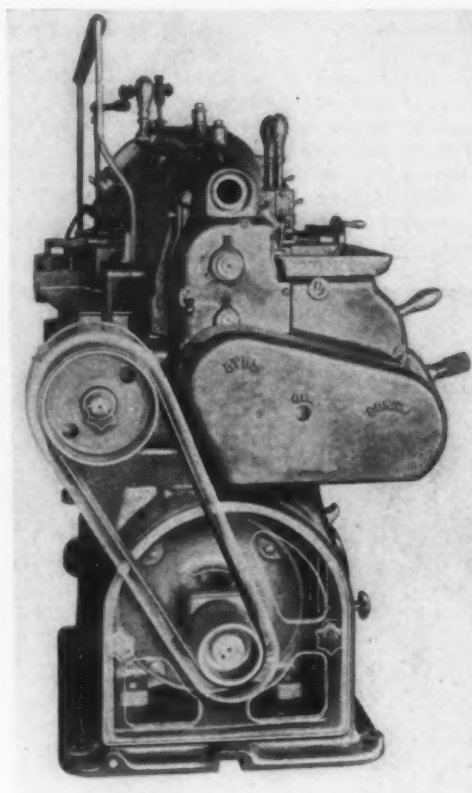
A 16-in. engine lathe designated as the model B, said to be newly designed throughout, and which incorporates several noteworthy improvements, has been placed on the market by the Pratt & Whitney Co., Hartford. Although primarily designed for individual motor drive, using a geared head, the machine may be adapted readily to single pulley drive or a cone head with countershaft drive.

Placing the back gears, which usually project from the rear of the headstock, directly beneath the spindle, thus figuratively making them "under gears," is an outstanding feature. In addition to a neat design, the compactness obtained is said to permit of a much stronger head with greater strain-resisting qualities. This arrangement also permits the proper light reaching the work centers, and does not interfere with the operator's arm freedom in filing and similar operations.

The motor drive arrangement, having the motor accessible but out of the way, is a feature. A 5-hp. motor is mounted in the cabinet leg on a hinged platform, which serves as a belt-tightening device. A belt from the motor drives a shaft at the rear, which connects with the spindle through a friction clutch and headstock gears. The clutch is operated by the overhead stop rod extending the length of the lathe. Fully inclosed electrical equipment, such as low voltage protection, master switch, etc., is provided, and the motor is started and stopped by means of a push button switch.

Other conveniences include the system of controls for both the spindle speeds and the carriage feeds. A set of four speed transmission gears operated by two interlocking levers on the front of the headstock provides convenient spindle control. These gears in conjunction with the back gears give eight spindle speeds, ranging from 13 to 525 r.p.m. in geometrical progression. Control of the back gears is through the lever just beneath the spindle nose, and the back gear lock is operated through a lever on the headstock. Headstock gears are of chrome-vanadium steel hardened, and all gears are cut on the Maag system.

Driving from the spindle gears a train of large spur gears leads down to the feed gear box on the front of the machine. By means of two levers and a direct-reading index plate any number of threads per inch or feed per revolution may be set instantaneously, tables and charts being unnecessary. The process of setting these levers is similar to plotting a point on a curve, the ratio lever controlling the three possible ordinates or vertical settings, while the abscissae are controlled by the twelve feed gears operated by the

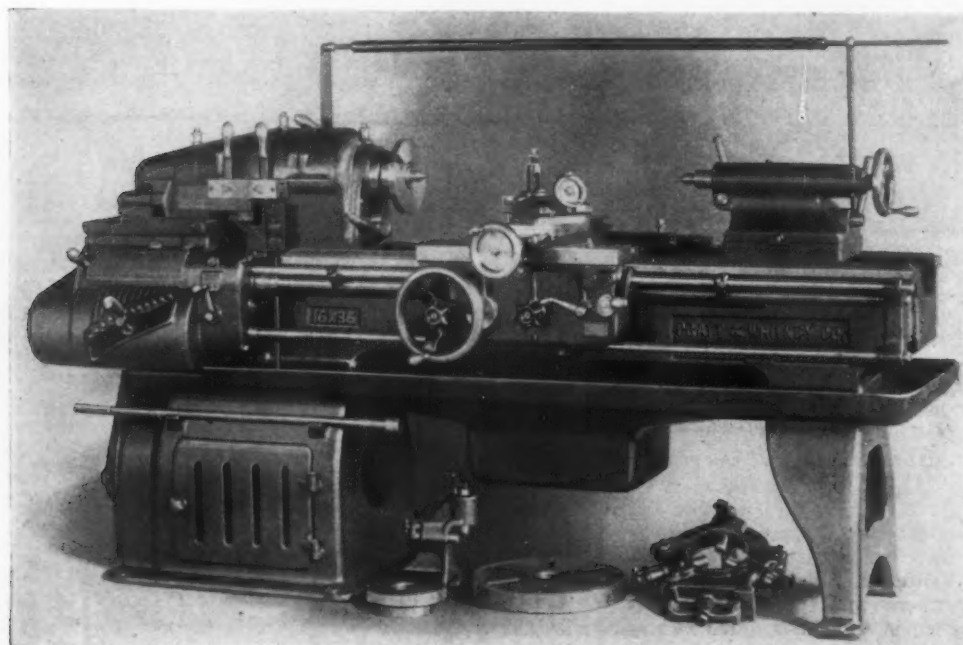


The Motor Is Mounted on a Hinged Platform Which Acts as a Belt Tightening Device. Absence of overhanging back gears may be noted also from view above

rocker lever. Among other advantages this arrangement provides a check on the lathe setting, not only to the workman but also to the foreman.

A further feature in the feed mechanism is the small pinion within the rocker arm supporting sleeve. This pinion drives the larger rocker gear and the feed gear cone, and was formerly supported by its own small driving shaft within the sleeve. It is now supported on an extension of its own periphery, which fits inside the supporting sleeve, serving as a secure support for its driving shaft and increasing the stability of the whole mechanism.

Features in the carriage and apron design include a quick withdrawing device for thread cutting, by means of which it is only necessary to give a hand-wheel a quarter turn at the end of a thread, and the tool is withdrawn completely. A positive stop permits the tool to be returned to its initial depth by the same hand-



Motor - Drive Arrangement and Mounting of Back Gears Directly Beneath the Spindle Are Outstanding Features of the Geared Head Lathe Shown at the Left. The system of controls for both spindle speeds and carriage feeds is also a feature and a quick withdrawing device for thread cutting has been incorporated. Lubrication of the geared head is by the splash method

wheel, while a graduated disk and wheel on the tool slide provide for further settings. Use of the carriage for ordinary turning operations is not impaired, as the tightening of a set screw throws the device out of action and makes a fine screw available for cross feed use.

The geared headstock is fully inclosed and the gear mechanism lubricated by the splash method. The friction clutch and intermediate gear meshing with it are submerged in the oil, and the next gear in line is half submerged and serves as the splash gear. Oil is thrown upward against the cover, and projecting ribs carry it downward to the various gears. Centralized oiling is used for parts such as the apron, the remainder of the machine being lubricated through oil holes.

The spindle is large and is carried in heavy bearings. The spindle is ground over its entire length and the bearing surfaces are hardened and lapped. The spindle nose is provided with threads, a cylindrical seat and a taper seat, and it is said to be so carefully worked out that face plate changing cannot effect the accuracy of seating. The tailstock spindle is locked by a long wedge placed so that the center position cannot be displaced by the locking strain. The lead screw provides ample surface for minimizing wear. The use of lapped thrust washers, and using spur gears at the

reversing clutch in place of the usual bevel gearing, is said to make accurate threading doubly certain.

On the geared head lathe a brake is applied when the control rod is thrown to the extreme right to open the clutch, thus stopping the spindle quickly. The same idea has been applied to the cone head in the form of a hand brake on top of the front bearing housing. Another feature is a conveniently located lever for reversing or stopping the travel of the carriage. This lever operates a stop rod with a rotary motion which carries stop dogs for automatic control in either direction when desired. Large rings, graduated to correspond with micrometer readings, and a graduated tailstock spindle are among other details incorporated. A complete line of special equipment is available.

The swing over the bed is 16½ in. and over the carriage 9½ in. Beds 7, 9 and 11 ft. are available, maximum center distances being 39, 63 and 87 in. for geared head machines and 36, 60 and 84 in. for cone head. The length of the machine is the length of bed plus 1 ft. 8 in. and the width 3 ft. 3 in. in all cases, including taper attachment. The height is 4 ft. 10 in. The weight of the geared head machine with regular equipment, 7 ft. bed and without motor, is 3900 lb. net.

## TRANSVERSE FISSURES IN RAILS

### This Insidious and Elusive Type of Fracture Is Prevalent on Certain Railroads

In a report on transverse fissures, prepared by Dr. James E. Howard, engineer physicist with the Interstate Commerce Commission, analysis is made of the locations of this type of rail fracture with regard to the analysis of the metal, as shown by the heat from which the rail was made; of the position of the ingot in its numerical order in the pouring of the heat; of the position of the particular rail with regard to the head of the ingot from which it was rolled; of the location of the rail with regard to traffic conditions of the road, etc. The age of the rail forms an important link in the chain of evidence, while the location of the fissure—whether on the gage side or the outside of the track—has also been studied.

#### Causes

As stated in the report, transverse fissure begins in the interior of the head of the rail and defies detection until it has reached an advanced state of development, making its appearance at the periphery of the head or resulting in the sudden and unexpected rupture of the rail. Starting from a central point or nucleus, it progressively increases in size, weakens the rail and culminates ultimately in rupture. The interior origin of such a transverse fissure is caused by a zone of metal in the top of the rail head acquiring a state of internal compression. This is a direct result of the cold rolling action of the wheels on the running surface of the rail. The necessary reactions put the interior of the head into a state of tension, resulting in transverse fissures in this particular zone.

Generally speaking, transverse fissures occur in all weights of rails, even the heaviest, of 136 lb. per yard, not being immune. They appear in rails from all parts of the ingot, from all rail mills in the country, and from both the Bessemer and open-hearth processes. There is a distinct relation between density of traffic and age of fissured rails, ranging on different railroads from three years or more up to 15 years. On double and multiple track roads, these fissures predominate on the heavy tonnage tracks. It is thus evident that the quantity of wheel loads contributes largely to their formation. Some roads with light traffic have reported no transverse fissures at all.

#### Almost Unknown Abroad

In Great Britain and on the Continent of Europe, transverse fissures are not prevalent. A distinguished English metallurgist explained this by saying: "In Great Britain the rails are not treated in the barbarous fashion customary in the United States." He referred no doubt to the question of wheel loads, as this is the

chief difference between English and American practice. Until European roads reach the same condition of severity of loading they will probably not have this trouble to combat.

The results of the compilation made do not hold out a promise that transverse fissures can be eliminated under those conditions of service which have now been reached. Internal strains must be reckoned with. There is no recourse against their introduction. It is questionable whether increased weight of rail, far beyond the heaviest now being rolled, would overcome their destructive effects.

Girder strength, abrasive resistance to the action of the wheels and cold rolling effects of wheels on the head of the rail are given as the three main problems in rail making. The first and second can be met without difficulty. The third feature, however, is a vital one and admits of solution only by the proper regulation of wheel loads. This means cooperation by the designer of rolling stock with the designer of the rails in so distributing wheel loads that the excessive cold rolling action now experienced may be reduced. Collaboration between the trunk line railroads and the steel mills will be necessary in working out this problem in such a way as to overcome the present difficulty.

### A Different Viewpoint\*

Great weight must be given Mr. Howard's latest report on transverse fissures (dated April 23, 1923), because he writes as a keen observer, one of the most expert of physicists, and with an experience of many years devoted to studies of steel and the behavior of rails. It is certainly with no intentional disrespect for his views that the question of the formation of transverse fissures is discussed without complete acceptance of his theories; for, after all, Mr. Howard's explanations are more theoretical than would be the case if sustained by more extensive experimental data.

As a matter of fact, the prevalence of transverse fissures is not nearly so alarming as an impressionist would gather from reading Mr. Howard's report. A total of 5000 heats from one mill, on one road, has shown fissures in about 3.6 per cent of the heats in about twelve years of service, and in approximately one rail in 1500. That case probably represents fair average conditions and by no means indicates a frequency of occurrence that need alarm the traveling public, for the same lot of rail has yielded one other type of failure in each 190 rails, or about eight times as many failures of other kinds as of fissures. Nevertheless, rails containing fissures constitute the most dangerous and, therefore, important class of failures with which the railroads are now involved, for they may give no warning prior to complete rupture, and trains are badly

\*From *Railway Age*, Aug. 11.



wrecked by the sudden failure of a rail containing one. But other wrecks of a serious nature have occurred from other types of rail failures; for instance, broken bases, often involving complete fractures, have probably given as much trouble in the past, and perhaps occasioned quite as much argument as fissures now afford. Failures due to broken bases have been almost completely eliminated; some might say by changing the design of the section and others by superior manufacturing methods; but, at all events, the disease finally yielded to treatment and the fissure problem should not be despaired of easily.

Mr. Howard's well known determinations of the strains in rails due to cold rolling are open to no argument. That compressive strains, caused by the rolling action of the wheels on the surface metal of the rail head, must be balanced by tensile strains in the interior, is admitted. But whether these tensile strains alone, and positively by the aid of no other agency, actually rupture the interior metal, in good steel and bad, and so produce internal fissures is obviously unproved, and will not be conceded without an abundance of supporting facts. It is true that very little is known about the effects of internal strains, or even of the fatigue of metals; but considerable advance has been made in other directions which, from a metallurgical point of view, quite invariably throws suspicion, if not entirely fixing the blame, on the character of the steel that does not possess the satisfactory qualities of its neighbor when under the same conditions of service.

The collection of data pertaining to the occurrence of fissures is interesting and gives information that, of course, should have been produced by the rail users long ago. In some respects they do not go far enough, for the locating of each fissure in the track is not especially impressive by itself, except as showing that certain locations have been so susceptible to the development of fissures that railroad travel was extremely hazardous. It would vastly increase the importance of the data to show the location of the failures by head numbers, and then the heats by mill rollings, and in that way bring out the point, if possible, that quite regardless of location certain heats are more prone to develop fissures than others.

The rails comprising 25 consecutive miles of line on one road produced several hundred fissures—so many that an accurate count was quite impossible, yet there was comparative freedom from fissures in the track for many miles on either side. That short stretch of track was composed chiefly of rails from one rolling of 61 heats. Following the removal of these rails the matter of fissures fairly subsided on the remaining 3000 miles of track and, except in sporadic cases, has not been a serious matter since. Another case is recorded where the rails of a single heat developed fissures, although laid on different lines of the same road in four different States.

These, and similar cases, in no way reflect on Mr. Howard's general theory, but emphatically show that some rails are much more apt to develop fissures than others subjected to precisely the same effects productive of cold rolling strains. Thus, in general, his theory is sustained, but with the important reservation that there may be a contributory, if not a prime, defect in the steel to account for the great differences in the effect of cold rolling strains. If split heads differ from regular fissures chiefly because of the presence of an internal seam in the steel, why may not some other inherent defect provoke the original nucleus of the transverse fissure?

Not infrequently the rails of a single rolling give peculiar results in service, and emphasize the point that some frailty of the steel may greatly facilitate the development of fissures. The rails of 61 heats rolled in three days at one mill have yielded over 40 fissures in 10 years of service on a certain railroad, and those fissures have been confined to 13 of the heats. Critics of Mr. Howard's theory will ask why 80 per cent of the heats, or say 99.5 per cent of the rails in this case, have been immune from fissures, notwithstanding the effects of cold rolling that must have been produced in all of them by practically identical traffic conditions. True, the answer is difficult, but an analysis of many similar

instances points so strongly to the possible, and probable, presence of some defect of good mill practice that the matter becomes one for further study and investigation, rather than an admission that all rails are dangerous because the wheel loads are too heavy.

A fourth feature should be added to the list in Mr. Howard's concluding remarks on what he regards as constituting the rail problem. Manifestly of more importance than any other feature of the rail problem is the matter of obtaining a good sound steel, properly treated and rolled into a rail. The first item in the list therefore should be "Quality of Steel." In many respects that is the crux of the rail problem. On it to a very large extent depends the success of the rail as a girder; the abrasive resistance to the wheels; and, not remotely, the influence of the wheels toward cold rolling with which may be associated matters involving the load carried by the small contact between wheels and rails. Good steel is an asset, bad steel is a terrible liability.

High-carbon open-hearth rails, and the process of making them, are a comparatively new thing. Their production and use have been developed largely by force of circumstances. In some respects they have not given the results anticipated, and certainly many details of manufacture have not been given the studious attention required of such an important product. Is the composition usually specified for present day rails (and frequently not obtained) the best suited, or has it been arrived at by mere rule of thumb? Are the large ingots used, weighing from 8000 to 14,000 lb., suitable for the rapid reduction to common section rails in from 18 to 30 passes? Are the common soaking pit methods of treating those ingots adequate assurance against the evils to which high-carbon steel is so susceptible? What are the actual effects of sonims in steel, and if the presence of some impurities can be restricted by proper furnace practice and control, why venture the risk of introducing them by some later additions?

C. W. GENNETT, JR.

Manager Rail Department, Robert W. Hunt Co., Chicago.

### Arcade Malleable Iron Co. Expands by Consolidation

The business of the Arcade Malleable Iron Co. division of the Baldwin Chain & Mfg. Co., Worcester, Mass., and that of the Springfield Malleable Iron Co., Springfield, Mass., are to be consolidated under the ownership of a new Massachusetts Corporation, which will retain the name of the Arcade Malleable Iron Co. Henry P. Blumenauer, general manager of the Arcade Malleable Iron Co. division, and also of the Springfield Malleable Iron Co., will be general manager and president of the new company. The Baldwin company will sell the foundry end of its business to the new corporation, but will continue otherwise without change in management and personnel of its officers. Mr. Blumenauer will probably remain a vice-president.

The Arcade Malleable Iron Co. will be capitalized with \$550,000 in first mortgage 7 per cent gold bonds, \$500,000 in 8 per cent preferred stock and 10,000 shares of no par value common stock. The board of directors as planned will consist of Frank A. Drury, president Merchants National Bank, Worcester; Frank J. Weschler, president Hendee Mfg. Co., Springfield; Arnold Whittaker, vice-president Moore Drop Forging Co., Springfield; Bowen Tufts, vice-president C. D. Parker & Co., Boston; J. Verner Critchley, president Reed-Prentice Co. and Walden-Worcester, Inc., Worcester, and Henry P. Blumenauer.

The Baldwin company bought the business and plant of the Arcade company in 1921, and a large foundry was erected and equipped with modern facilities for manufacturing castings. The Springfield Malleable Iron Co. was organized within a year, taking over the plant of the Harley Foundry, renovating it and building a large foundry arcade.

Henry P. Blumenauer went to the Arcade company as general manager in 1919, from the Eastern Malleable Iron Co., Naugatuck, Conn., of which he was the sales manager. He is a Cornell man, and before entering the malleable iron business was for five years with the Standard Oil Co. in the Straits Settlements.



### New Semi-Automatic Disk Grinder

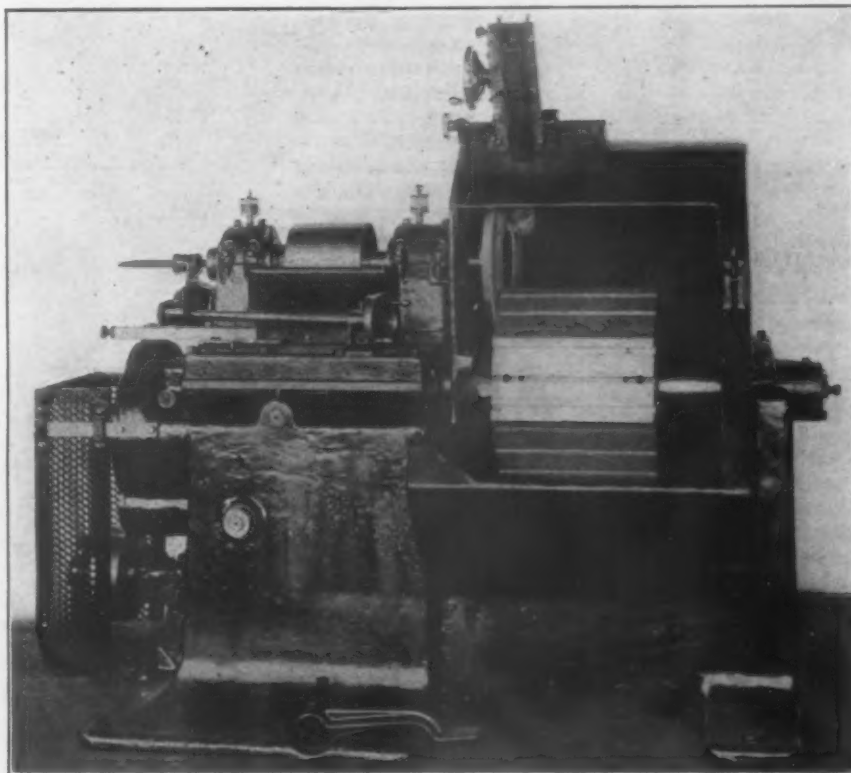
An 18-in. semi-automatic grinder for parts requiring the finishing of but one flat surface at a time, has been placed on the market by the Gardner Machine Co., Beloit, Wis. With this machine the operator is left free to devote his time to the loading and unloading of the fixtures. In addition to increased production as compared with the ordinary single-end disk grinder, rugged construction and provision for proper truing of the grinding wheel are said to permit also of unusual accuracy.

Parts to be ground are carried in fixtures which are mounted upon an eight-sided revolving drum, the faces of which are 7 in. wide and 14 in. long. The speed of the drum is varied by means of four change gears. The drum is slotted on each side with two T-slots and one straight groove to receive a tongue, which is usually placed on the bottom of any fixture to assure correct alinement of work with the grinding wheel. The drum shaft is of large diameter and is supported on

adjustable by means of a conveniently located hand-wheel operating through a screw. The handwheel is graduated, each graduation representing a movement of 0.005 in., this arrangement being intended to permit of quick and accurate adjustment of the grinding member, to compensate for wheel wear. This head also has a lateral movement governed by the adjustable spring pressure described.

For dry grinding the grinding member consists of an 18-in. diameter steel disk wheel faced with an abrasive disk. When coolant is required the machine is equipped with an abrasive ring wheel carried in a special chuck. A backing plate fills the center hole of the grinding wheel, the plate being part of the hollow shaft, which passes through the machine spindle, and is used for carrying coolant for wet grinding. The grinding member is supported by the entire grinding head. The flange carrying the grinding wheel is of large diameter, providing a rigid support which extends well out toward the periphery of the wheel. A hood guards the grinding member as shown, and shields

Semi - Automatic Disk Grinder. Work is placed in fixtures on the drum, and as it comes to grinding position, the grinding member advances automatically. The foot lever controls starting and stopping of drum, and the handwheel at the left is for adjustment of grinding member to compensate for wheel wear.



both sides of the drum. The thrust load is carried by a self-aligning thrust bearing, which bears directly against the end of the shaft.

As the work approaches the grinding position, the grinding member advances automatically until it reaches a positive stop. This member approaches the work under an adjustable spring pressure governed by a cam, and it advances only as rapidly as the stock is removed, giving a constant pressure against the work being ground. It is returned to the open position by the action of the same cam and the work, as it returns to the loading position is removed and the fixture reloaded. The revolving of the drum is controlled by the foot lever, which operates a double disk dry clutch at the left-hand end of the machine.

The spindle construction is a feature emphasized. The spindle is of alloy steel, heat-treated, and bearings are of bronze. The latter are tapered on the outside and fitted into tapered cast iron sleeves, the bearings being drawn into the taper of the sleeve to compensate for wear. Thrust is carried by a hardened and ground steel collar, which bears directly on the spindle bearing, adjustment for end thrust being provided by a nut and locknut on the spindle at the opposite end of the bearing. The spindle bearings are grooved and lubrication is by means of sight-feed oil cups.

The grinding head is a one-piece casting which weighs 275 lb. It is mounted upon a sub-base and is

are provided for attachment to a dust exhaust system. The truing device is an integral part of the machine. The dressing operation does not interfere with the set-up, and in many cases the dresser may be used without stopping production. The dresser is mounted on a slide carried by the hood and lateral adjustment to compensate for wear of the grinding wheel is by means of a screw. During the dressing operation the dresser travels in a vertical slide and is operated by a hand-wheel working through a rack and pinion.

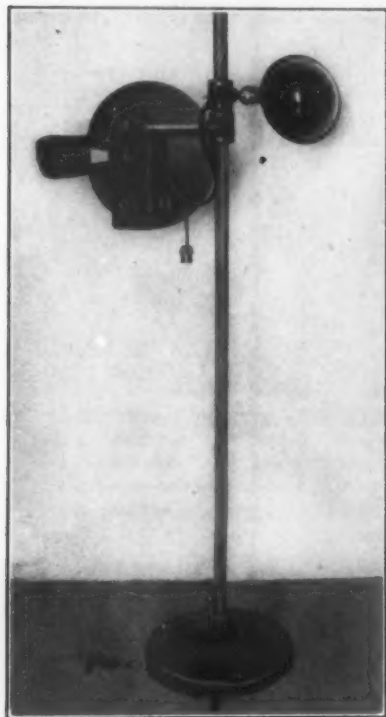
The arrangement for supplying coolant at the proper point is a feature emphasized. The tube carrying the coolant passes through the hollow spindle, connection being made at the outer end with the pump and the inner end terminating in the backing plate. The tube is provided with a number of holes at a point just behind the backing plate, through which the coolant flows.

The machine is designed for belt drive only. The height of the spindle from the floor is 40 in., and the operating floor space required is 7 x 9 ft. The power required for maximum duty is 10 hp.

The Charter Gas Engine Co., Sterling, Ill., will build next year a complete new machine shop, erecting floor, and a new foundry for heavy iron castings. This will not be an addition to the present plant, but in another location. The land has been purchased.

### Device for Studying Moving Parts

An instrument known as the Rotostat for studying the action of moving parts, making revolving objects



Revolving Objects Appear to Stand Still or Move Slowly, Permitting Study of Motion

appear to stand still or to move slowly, has been placed on the market by the Rotostat Instrument Co., 600 West Lehigh Avenue, Philadelphia.

Errors of timing of interlocking parts, unexpected interference, deformation of parts under centrifugal stress, and instantaneous and periodic speed variations are said to be observable. The instrument is intended to permit of locating the trouble and of finding the weak points which limit operating speeds. Erratic motion due to backlash of gears, slipping of belts, and errors of balance is

said to be easily detected. In the field of metal cutting it is said that the tool may be seen in a stationary position with the chip as the only moving part. In observing centrifugal pumps and blowers through the instrument, it is claimed that the formation of eddies with the resulting losses may be shown by the passage of colored fluids and smoke. In the sale of complicated machinery it is expected that the instrument may be used to advantage in showing the operation directly, eliminating technical explanation.

The device is essentially a stroboscope. A slotted disk, motor driven, is revolved in approximate synchronism with the object to be studied. When the observer peers through the hood, the aperture of the revolving disk permits him to obtain momentary images of the object. When the disk and the object being observed are in synchronism, the object appears to stand still. When the disk moves slightly faster or slower, the object appears to move slower, according to the differences of the speeds. The disk speed is controlled by two rheostats, giving coarse and fine adjustment, respectively.

Operation is from a lamp socket, and the two knobs are manipulated until the object appears stationary or slowly moving, as desired. As shown in the illustration, the instrument is mounted on a standard and is adjustable in all directions. Special illumination is not required, an adjustable lamp and reflector being mounted on the standard. A dim light is said unnecessary and the use of a battery or special electrical equipment is not required. The case is of aluminum and the disk of a flexible material to avoid injury in case of accidental contact. Optical parts are finished in dull black to eliminate reflection and glare.

The Federal Machinery Sales Co., Chicago, has given up the sale of Sidney engine lathes in Chicago territory and will represent the Monarch Machine Tool Co., Sidney, Ohio, instead.

Manning, Maxwell & Moore, Inc., 27 North Jefferson Street, Chicago, has taken on the sale of Monarch Machine Tool Co. engine lathes, with the exclusive right to sell the railroads in Chicago territory.

### New Three-Wheel Tractor Truck

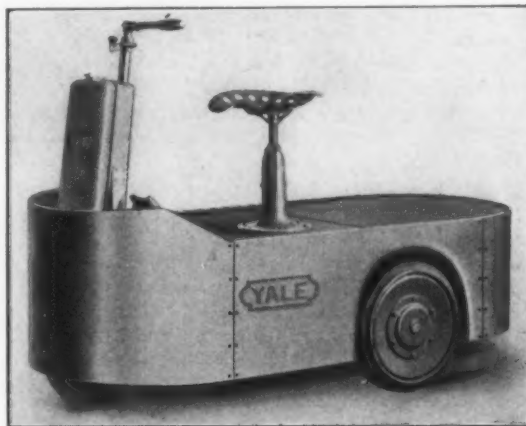
A three-wheel tractor truck, designated as the K24 and intended as a small load carrying unit for service in congested places, has been placed on the market by the Yale & Towne Mfg. Co., Stamford, Conn. Its platform area is 15 sq. ft. and the machine passes a 3 ft. doorway or a 7 ft. elevator. Low center of gravity is a feature and "bucking" or overturning against stalling loads or tipping over sideways while rounding a corner are said to be eliminated.

The frame, which is of pressed steel, is formed by the bumper plates and battery container welded to form one solid unit, and is suspended on helical springs over each wheel. The seat is provided with an additional spring and is of the swivel type to permit the operator to get on and off the machine with facility, and to look or reach back to the coupling point. The clear deck permits clear vision to the draw-bar.

The truck is designed with a minimum number of parts which are grouped into self-contained major units and easily accessible. The company's spur-gear unit power axle is incorporated, being the same as used in the other "K" models, except that the wheel bearings are rigidly mounted on the end of the housing. Control of the machine is simple and direct. The controller handle is directly connected by a spur gear to the controller drum and has the Z-slot neutral stop. The steering handle is rigidly mounted on top of the steering column and the single brake pedal provided may be easily locked down by throwing a button with the other foot.

The draw-bar pull is 300 lb. normal, and 1800 lb. maximum. The maximum speed empty, on level concrete, is 8½ miles per hr. With four loaded trailers, a 16,000-lb. load on level floor, the maximum speed is 4½ miles per hr. The turning radius of the outside edge of the tractor is 58 in. and of the inside edge 3 in. The wheel base is 42½ in. and wheel tread 31¼ in. The platform height is 24¼ in., the ground clearance 5 in., and the overall length, width and height of the tractor is 82 x 35 x 56 in., respectively. The weight of the machine without the battery is 1650 lb. and equipped with a lead battery, 2400 lb.

The wheels are of pressed steel, disk type, and the front wheel is a semi-steel casting. The brake is of the external contracting double-shoe type mounted on



Tractor Truck for Small Load Carrying in Congested Places. Low center of gravity is a feature

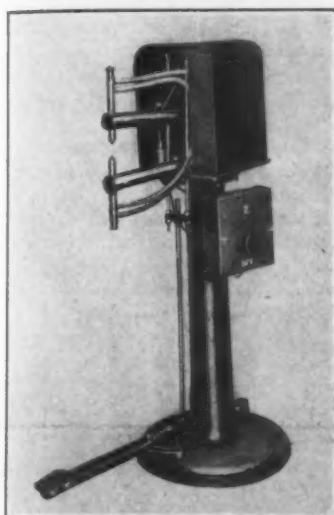
the motor shaft, and is operated by foot pedal, which also opens the cut-out switch. The coupler is the company's pin and socket type extending completely around the vehicle.

Absorption of the Dominion Radiator Co. by the American Radiator Co. has been completed, it was announced at Toronto Aug. 24. The Toronto stock exchange has listed \$1,548,000 of the 7 per cent stock of the Dominion Radiator & Boiler Co., Limited, New York, the American Radiator's new subsidiary, for operating the Old Dominion Co. in Toronto and its own Canadian branch at Brantford, Ont.



### Machine for Spot Welding Light Stock

Close position of the transformer to the electrodes and the use of an oil dashpot switch, which is said practically to eliminate sparking at the switch points, are features of the electric spot welding machine illustrated, which is being marketed by the H. J. Ness Mfg.



Co., 305 Broadway, New York. The machine is primarily for operation on alternating current, but direct-current machines from stock welders, wound to work with the company's rotary converters, are available also.

The transformer is located within 2 in. of the rear ends of both horns and midway between them. It is claimed that the closer the transformer is to the electrodes the higher will be the efficiency of the machine, current losses which occur when

low-voltage high-amperage current is conducted any considerable distance being lessened. The lead to each of the electrodes being about the same length, more uniform heating of the electrodes is claimed. From No. 30 wire to  $\frac{1}{4}$  in. rod may be welded with a 10 amp. fuse in the circuit.

In addition to eliminating sparking at the switch points and thus lessening deterioration at those points, the oil dashpot is said to make the equipment sensitive by reducing the lag between the switch and the electrodes.

The machine is available in two sizes and may be arranged for motor-belt or foot operation. Pieces to be welded are placed between copper electrodes which are supported on the ends of two copper horns. The upper horn is carried by a rocking arm which is lowered on the work by depressing the foot pedal. The upper electrode comes in contact with the work under spring pressure, the spring being further depressed until the current is turned on. The pieces are heated instantly to welding temperature after which the current is automatically turned off. The weld is completed under spring pressure, which may be adjusted to suit conditions. Finally the electrodes are opened and the work released.

A selector switch provides three welding steps for each voltage, to suit the different thicknesses of material handled. Both 110 and 220 volt current may be supplied to the machine, the lower voltage being used for work up to No. 10 wire, and the higher for No. 9 to  $\frac{1}{4}$  in.

Additional welding steps are optional where 220 volt current or more is available. In the three-step switch the only moving part is the knife. In tests made when using the first step in welding No. 15 English gage iron wire, 3.75 amp. is said to have been consumed. Using the second step in welding No. 14 gage iron wire 4.4 amp. were consumed, and using the third step in welding No. 10 gage iron wire, 5.5 amp.

There are seven adjustments for regulating the height between the horns and the pressure applied to the electrodes in welding. The treadle position may be shifted 35 deg. The horns are of cold-drawn copper bars, 2 in. in diameter, and are adjustable and water cooled.

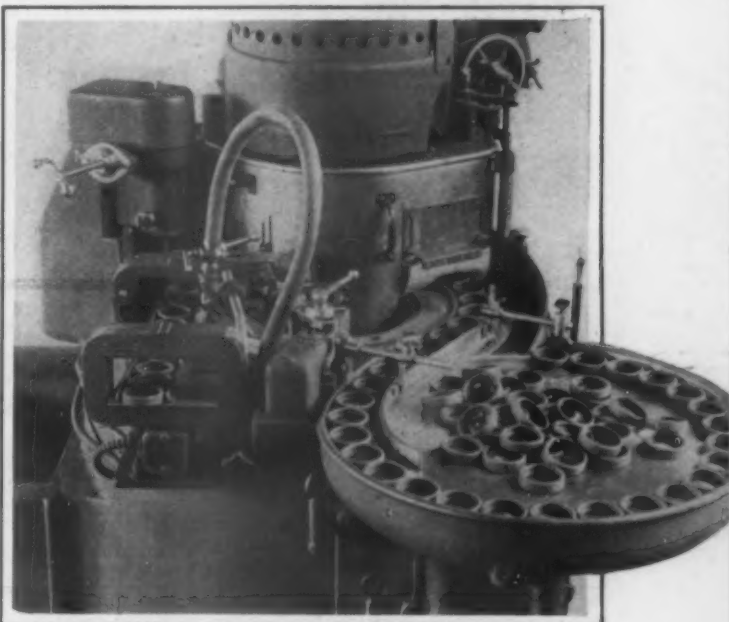
The electrodes are secured in the horns by means of a hand-operated lever and cam lock on each horn. The distance between horns when closed is 5 in. on the standard machine, and on slide horn machines with horn at top of slide the distance is 5 in., with horn at bottom of slide, 16 in. The greatest movement of the upper electrode is  $2\frac{1}{2}$  in. The distance from floor to welding electrodes is 42 in.

### Surface Grinder with Dial Loader

Dial loading has been added as a feature of the No. 16-A automatic surface grinder of the Blanchard Machine Co., Cambridge, Mass., which was described in THE IRON AGE of March 1. The previous machine was loaded by hand, the grinding, maintaining of size, demagnetizing and chuck cleaning being automatic.

The modified machine is for the grinding of rings, washers and similar circular work, which is placed upon a circular table rotating at a slightly higher peripheral speed than the magnetic chuck. A large number of pieces are placed on this rotating dial from which they are fed continuously onto the revolving magnetic chuck. The operator's work is intermittent, this arrangement releasing him for moving containers of rough and finished pieces.

After placing the work upon the dial, operation is entirely automatic. The chuck is non-magnetic at the loading position but just before the work reaches the waterguards inclosing the grinding wheel, the chuck becomes magnetic, the piece being gripped magnetically and carried under the wheel. Grinding to size is completed in one pass under the wheel, the exact size of the pieces being maintained by a wheel control caliper which automatically makes the necessary adjustments of the wheelhead to compensate for wear of the wheel. After the work leaves the wheel control caliper, the chuck becomes non-magnetic and the work leaves the chuck, and after passing through the demagnetizer is discharged into containers. A washing machine may



Surface Grinder with Dial Loading Feature. After placing work upon the dial the operation is entirely automatic, the operator's work being but intermittent

be added, in which case the pieces are discharged washed and demagnetized.

Four chuck speeds are provided, and the feed, as mentioned, is controlled automatically to an amount just enough to compensate for wheel wear. The base of the machine forms a tank for coolant, and holds 180 gal.

It is claimed that the machine will maintain size to within limits of plus or minus 0.0005 in., and will hold work parallel to within 0.0003 in. Removing 0.010 in. from each of two sides, ball race rings of hardened steel, 3  $\frac{5}{32}$  in. in diameter, are said to be finished ground at the rate of 630 pieces, 1260 surfaces, per hr. Ball thrust washers of carburized steel, 2  $\frac{3}{4}$  in. x 1  $\frac{9}{16}$  in., outside and inside diameter respectively, have been finished ground at the rate of 550 pieces, 1100 surfaces per hr., 0.013 in., stock being removed from each of the two sides. In addition to high rate of output lower wheel cost per piece is claimed for the operation of this machine.



## COLD ROLLED STRIP MILL

### Machine of Precision Type Developed by Philadelphia Company

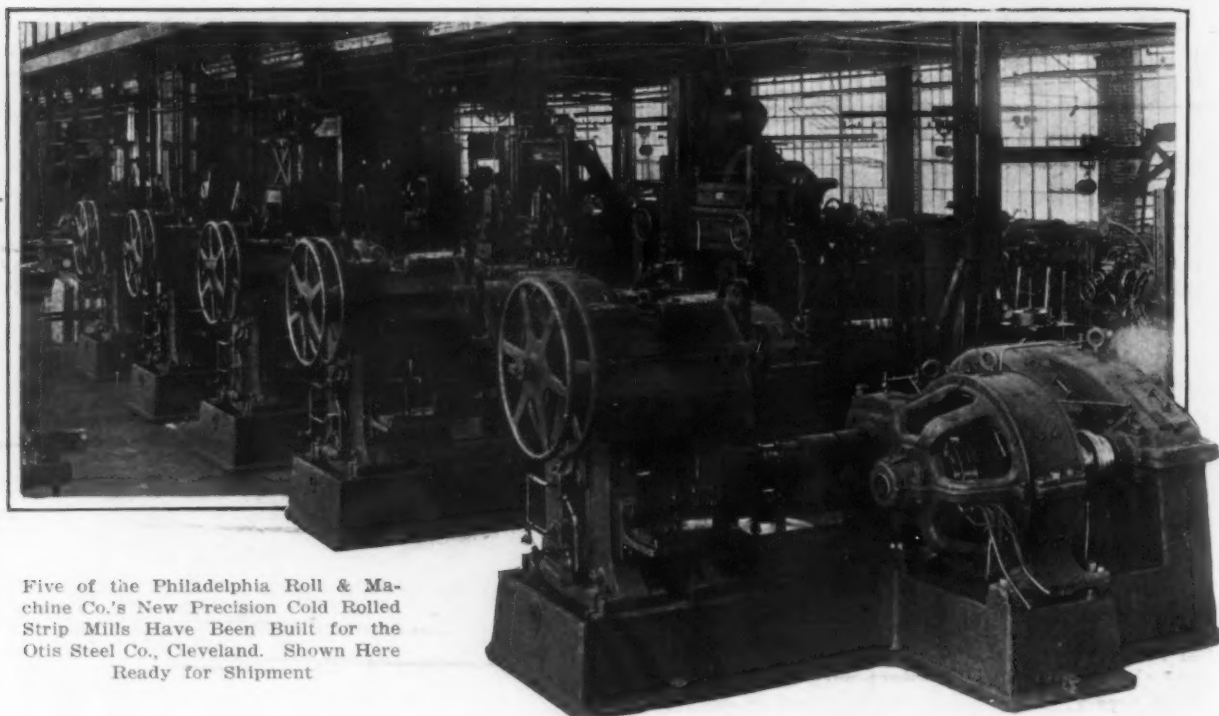
A cold rolled strip mill of improved design, of which the outstanding feature, according to its designer, is absolute rigidity for precision work, has been developed by the Philadelphia Roll & Machine Co., Grays Avenue and Fifty-second Street, Philadelphia. Five of the mills have been built for the Otis Steel Co., Cleveland, and are now being installed in that plant.

The new mill is of the so-called low type, the company having for some time made high-type mills and will continue in that line in the larger sizes, such as 12 and 14-in., building low-type mills principally in sizes ranging from 6 to 10 in. The new low-type mill is regulated to 0.001 in., and it is claimed that its rigidity

Bearings in the roll housings and the combined gear and pinion housings are of phosphor bronze. Bearings in the combined gear and pinion housings are furnished with oil by a gear-driven pump. This oil is taken from a settling tank and after lubricating the bearings it flows back into the combined gear and pinion housing and thence into the settling tank. Gears which do not dip into the oil are lubricated by a stream of oil flowing on the teeth at the points of contact with the pinions.

### Reduced Italian Tariffs on Pig Iron and Scrap

WASHINGTON, Aug. 28.—Iron and steel products are particularly prominent in the list of articles on which tariff rates have been reduced by the Italian Government and for which special conventional duties had already been established by commercial treaties



Five of the Philadelphia Roll & Machine Co.'s New Precision Cold Rolled Strip Mills Have Been Built for the Otis Steel Co., Cleveland. Shown Here Ready for Shipment

of construction does away entirely with chatter marks on the strips.

A feature of the mill is its inclosed gears, which are rendered easily accessible by the removable of a one-piece cap, which exposes all journals and gearing, including the top mill pinion. To remove the cap it is necessary only to disconnect the flexible coupling and not necessary to disturb the motor with its soldered leads. The motor is also easily accessible as it is on a level with the shoes.

The delivery speed of the mill is another point emphasized. In single units it will deliver 75 to 150 ft. per min., while in tandem operation, which is adjustable, it will also deliver 75 to 150 ft. per min.

No part of the mill requiring attention is over 6 ft. above floor level, and consequently all parts, including the sight feed lubricators, can be reached from the floor without the use of a ladder.

The construction of the mill is similar to that of the other mills made by the same company. All large castings such as gear and pinion housings, roll housings and bed plates are made of charcoal air-furnace iron. Shafts, screws and mill pinions are of open-hearth forged steel, heat treated if required to obtain proper physical properties. Gears and pinions, including the mill pinions, have double helical teeth and run in oil. The roll housings are of the closed-top type.

The top roll of the mill is counterbalanced by springs set on top of the housings and the top roll suspension rod is so arranged that the housing fittings may be removed by merely loosening the spring, it not being necessary to remove the rod.

entered into with France, Switzerland and Austria. Owing to the fact that the reduction from the old general duties has reduced the benefit derived from the treaty concessions, says a report received by the Department of Commerce from Commercial Attache H. C. MacLean at Rome, a special list of new conventional duties on a number of articles has been drawn up which will apply to nations receiving most favored nation treatment, which includes the United States.

In general small reductions have been made in many coefficients of increase on iron and steel products. The duty on cast iron scrap has been eliminated and the coefficient applying to pig iron has been reduced from 2.5 to 1.5 making the duty now lire 3.125 per metric quintal instead of lire 4.375 per quintal. A similar change has been made in the coefficient applying to spiegeleisen containing 15 to 25 per cent manganese, while a coefficient of 0.6 has been applied to ferro-alloys, on some of which the coefficient was formerly 1 and on others 0.5.

"The reduction of the tariff on pig iron should facilitate the running of the steel plants, and now that cast iron scrap is free of duty it will be more readily available for conversion into pig iron in the electric furnaces," says the report. "Italy is now equipped with 9 powerful coke blast furnaces, and 113 electric steel furnaces of large and medium capacity and 60 small ones."

A cast-iron carwheel foundry to have a capacity of 500 carwheels a day is to be erected at Hegewisch, Ind., by the Western Steel Car & Foundry Co.

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ESTABLISHED 1855

# THE IRON AGE

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## Dissolve the United Mine Workers

As we write this, the outlook is that a strike of the anthracite coal miners will begin on Sept. 1. The one thing that may avert it is the mediation that has been undertaken by the Governor of Pennsylvania. The previous negotiations between operators and miners broke up over the bald demands of the miners for a large increase in wages, which the operators refused, at the same time offering to submit the matter to arbitration and abide by the verdict thereof. The miners would not assent even to that. So far the record is clear.

The miners alleged that the operators could grant the increase that they demanded and take it out of their profits. The operators said they could not do it without passing it on to the public in the form of increased price for coal. We may imagine that the operators would be willing to give the miners anything they want, if they could recoup themselves. Economically it is the public that pays, anyhow. The operators, having broader economic vision than the labor leaders, can better foresee the danger of forcing the public to the use of substitutes and thereby leading to the eventual extinguishment of capital in the anthracite business.

With the imminence of a strike the Federal Government, representing the public interest, was brought into the affair. The Coal Commission exhibited its futility. After all its long and costly work it had neither thrown any new light upon these recurring controversies nor offered any good suggestion for averting the impending one. The best it could recommend in its first report was Governmental assumption of mining. But how could the Government make the miners work except on their own terms if they be unwilling?

The Administration appears wisely to have thought of that and to have adopted as its logical course the organization of distribution of bituminous coal as a substitute for anthracite. This is economically sound and politically sound. If put into effect and if loyally supported by the public, as it should be, it will constitute a terrible threat to the anthracite industry, even the risk of

extinction. We may imagine the mines filling with water, roofs caving and machinery deteriorating, the companies losing their markets, while miners are sitting idly by and losing their own jobs. But we submit that this is neither the only thing nor the best thing that the Government might do.

Would it not be absurd if, while possessing an abundance of anthracite, we should conclude that the public might not enjoy it because the industry would not produce it? That a great industry should die just because we could not run it? Let us ask why there should be such impotent deadlock in anthracite mining and never in any other branch of mining and see if the answer be not artificial economic restrictions? Let us then consider if the keystone thereof be not a regime of organized labor that is so complete that the possibility of competition has been atrophied.

We do not think that the legal advisers of the Government would have to strain their minds very severely to find the United Mine Workers an organization that is inimical to public welfare and illegal in its practices. The United States Coal Commission believes that there is ample authority to punish a conspiracy of operators or miners or both, directed against the general welfare of the people. If the United Mine Workers is not a conspiracy, what is?

President Harding, in a state paper last year, declared that it was the pitiful truth that we were then "at the mercy of the United Mine Workers." President Coolidge, in trying to promote the use of substitutes merely avoids saying the same thing. How do the proud people of the great republic like to be at the mercy of 150,000 laborers led by a handful of professional guides? If thus in anthracite coal, why not in other essential things? Then would our days be numbered.

It would be the bold and courageous thing now to proceed to dissolve the United Mine Workers as an organization directed against the public welfare, restore the constitutional right of every man to work as he pleases, and remove impediments to the operation of the law of supply and demand, so that anthracite mining might begin to function with the freedom of other industries and

let the people have the coal they want, just as they get their iron and copper. If legal authority for such action cannot be found, then Congress should be summoned to enact it.

Progress in X-Ray Analysis

Both producers and consumers have long recognized the value of some method of locating injurious defects in steel before expensive labor has been put upon it. In a notable contribution to the study of X-ray examination of metal, to be presented this week at the Montreal meeting of the mining engineers and published in large part in THE IRON AGE last week, Dr. Ancel St. John describes a new method by which objects of irregular shape and thickness can be examined quickly and cheaply so as to reveal hidden defects. It involves a simple modification of present equipment, principally by the use of a special absorbent medium, methyl iodide. By a combination of chemistry and physics the author apparently has made possible the commercial application of a most important principle. He demonstrates the feasibility of locating defects in rough forgings or other materials before they have been machined or fabricated.

The value of such a development can scarcely be exaggerated, particularly in the possible savings in cost. It places the X-ray on a definitely practical basis in metallurgical industry and gives a new guaranty of safety to the user of metals in cases where defects may be the cause of serious failures. The X-ray and magnetic analysis, which also has recorded signal advances recently, seem to promise the early realization of non-destructive examination for most of the forms of metal in commercial use.

A Half Year's Pig Iron

Pig iron production in the United States in the first half of this year was 21,016,475 tons, of which 133,469 tons was charcoal iron, leaving 20,883,006 tons of the grades reported by THE IRON AGE, the total of our monthly figures in the six months having been 20,841,534 tons. The difference, 41,472 tons, is one-fifth of 1 per cent, or eight hours' production at the June rate.

The remarkable ascent in pig iron production within the space of 24 months is shown by the figures of the last four half-years as follows, the output in the second half of 1921 having been the smallest in 14 years, or since the first half of 1908:

	Gross Tons
Second half, 1921.....	7,157,145
First half, 1922.....	12,191,011
Second half, 1922.....	15,028,893
First half, 1923.....	21,016,475

The successive gains were 70 per cent, 23 per cent and 40 per cent, making a cumulative increase of 194 per cent. Production in this last half year fell only 2 per cent short of being three times that of the half-year 18 months earlier. Yet the previous half-year record, made in the second half of 1918, was broken by only nine-tenths of 1 per cent.

These figures alone are sufficient to indicate

that fluctuations in iron and steel production are due not wholly to variations in ultimate consumption, but in part represent alternate accumulation and liquidation of stocks. To a considerable extent the stocks may be not in pig iron or rolled steel but in manufactures of steel, machinery, implements, tools, etc.

Distribution of pig iron production as to grades has varied but little of late, so that the relative positions of Bessemer steel, of open-hearth steel and of iron castings may be regarded as more or less established until important changes occur in basic conditions. The analysis by grades has been as follows, low phosphorus being included with Bessemer and ferro-silicon with foundry iron:

	Per Cent of Grades of Pig Iron		
	Year 1921	Year 1922	First Half 1923
Basic .....	46.5	50.8	48.5
Bessemer .....	33.5	28.7	30.3
Foundry .....	15.4	14.6	15.2
Malleable .....	2.7	3.9	3.9
Forge .....	0.7	0.8	0.9
Ferromanganese ....	0.6	0.5	0.6
Spiegeleisen .....	0.3	0.3	0.3
All other .....	0.3	0.4	0.3
	100.0	100.0	100.0

The proportion of merchant pig iron has not shown much change, being 22.4 per cent in 1921, 23.9 per cent in 1922 and 26.4 per cent in the first half of this year, the percentage naturally rising as demand increases.

Railroad Earnings and Legislation

We commented last week on the recent remarkable performance of the railroads, with loadings exceeding a million cars a week. From the viewpoint of possible attempts at hostile legislation, these service records are more encouraging than their earnings exhibits. From this legislative viewpoint there is an unfortunate fact, that while the railroads are performing record service they have been making a little money. Preliminary figures indicate that the June return on tentative valuation was at an annual rate of 5.47 per cent, against 4.86 per cent in June, 1922, and 6.33 per cent in May of this year. The prescribed return, for rate-making purposes, is 5¾ per cent, this following the 6 per cent rate that was nominally the rule during the first two years of the Transportation Act.

The railroads have been earning of late something near what they ought to earn, and it is to feared that their success will furnish a fresh incentive to certain politicians to hit them. Until very recently the roads were falling very far short of the level set up. In August, September and October of last year the roads were earning at about 4 per cent, or 30 per cent less than they were entitled to earn, and in the Congressional campaign of that period many statements were made calculated to give hearers the impression that the Government was "guaranteeing" a return. If those who made the statement believed it they should feel that the Government owes the railroads an extra return, now that traffic is unprecedentedly heavy. At any rate it is to be hoped that the fact that the railroads are making some money after years of leanness will not be



used as a basis for attacking them afresh. That they are giving such good service is reason for letting them alone.

Ten years ago it was commonly said that the electric furnace could not compete with other melting and refining mediums for producing small steel castings. Developments in this field in recent years have completely refuted this prediction. The 1922 statistics of output, compiled by the American Iron and Steel Institute, show that last year not only was the production of small steel castings by the side-blow converter, the crucible and the electric furnace nearly twice that of 1913—or 203,760 gross tons as against 107,280 tons—but that electric furnaces melted 76 per cent of the 1922 total as compared with only 8.4

## JAPANESE MARKET ACTIVE

### Heavy Purchases of Wire Rods From Canadian Interest—More Tin Plate Bought—Chinese Market Quiet

NEW YORK, Aug. 28.—While a considerable improvement is manifest in the Japanese market, Chinese buyers are quiet following the recent activity. At present Chinese merchants seem to be largely confining inquiries and purchases to wire shorts, nails and sheets. There has been some fair purchasing of cut nails lately and an order for steel hoops (seconds). Wire shorts are only moderately active at present prices which Chinese buyers still consider too high. Recent inquiries for medium gage sheets have specified shipment in two to three weeks and hence were without result.

Japan seems to have entered upon a period of at least temporary buying activity. Inquiries and orders on wire rods continue a prominent feature in Japanese buying, although a great many of the orders have been placed by the exporters with a large Canadian interest, which until quite recently booked a considerable part of this tonnage at \$53.50 and \$54 per ton, c.i.f. Japanese port. This was several dollars per ton less than the quotation of mills in the United States, which held at about \$58 per ton, although this price is believed to have been shaded in some cases. The Canadian price is said to be higher today, with delivery fairly good.

Japan has also been fairly active on structural material and it is reported that one large export steel interest has booked a total of about 3000 tons in the past ten days. Sheet inquiries continue fairly numerous but little buying is reported. This is attributed in some quarters to the attitude of the mills, the two leading interests being reported out of the market on light gage sheets of 13 to the bundle and 27 to the bundle. Prices are still reported at nominally \$106 per ton up for No. 30 gage. On the other hand British mills are well sold up to the end of the year, although it is believed that a firm offer at about £21 5s. per ton, c.i.f., might bring out a few hundred tons from the smaller makers. As is the case with American mills, plenty of 10 sheets to the bundle (No. 28 gage) sheets are available for reasonably early delivery and about £16, c.i.f., could probably be done on this gage, which, however, is not in as great demand with Japanese buyers as the lighter sheets.

The Nippon Oil Co., which recently closed on 60,000 boxes of tin plate through a Japanese export house, will open bids Aug. 29 on 19,000 boxes of tin plate. It is said that the monthly consumption of this company is about this amount. Requirements today may be larger than this as a result of the reported activity by the Japanese in oil exploitation in Northern Saghalien.

The recent rail order of the Imperial Government Railways for 11,160 tons of 60 and 75-lb. sections is reported to have been placed at between \$44.60 and \$46 per ton, c.i.f. Japan, based on an ocean freight rate of

per cent in 1913. The swing has been from the converter to the electric process, for 75.2 per cent of the small castings produced in 1913 were made in converters. In fact, last year the electric steel castings output of 154,980 tons was considerably in excess of the total of small castings production in 1913. Thus it is demonstrated again that it is not wise, in prophesying concerning industrial developments, to stake too much on the continuance of existing conditions, or count too much on the retarding influence of initial difficulties. It was current talk in the early days of the electric process that it could never be a factor in the production of rolled steel. This has suffered the fate of the other prediction, for electric steel ingots now constitute more than half the electric steel output of the country.

\$6 per ton. Although Osaka municipality at first demurred at the prices submitted on the 30 sets of manganese frogs and switches for the municipal railroads, the award was finally made to Suzuki & Co., New York. In addition to the 120 sets of manganese steel frogs and switches, bids on which the South Manchuria Railway will open Sept. 8, and 10 sets opening in October, the road is in the market for 3000 locomotive boiler tubes. This is one of several lots recently purchased.

Orders for new equipment totaling \$1,000,000 for electrification of 35 additional miles of the Paulista Railway, Brazil, have been placed with the International General Electric Co. The first electrification contract placed by this railroad was in 1920 when equipment for 28 miles of double track was purchased from the International General Electric Co. This latest purchase brings the total electrified mileage of the railroad up to 63 miles from Jundiahy north to Tatu, one-half the total mileage of the road. Included in the recent order are five 62-ton electric switching locomotives, a complete substation of 4500 kw. step-down transformers, switchboards, switchgear and other auxiliary equipment, overhead line material and transmission for the extension.

## COMING MEETINGS

### September

**Chemical Industries.** Sept. 17 to 22. National exposition, Grand Central Palace, New York.

**Machine Tool Exhibition.** Sept. 18 to 21. Mason Laboratory, Yale University, New Haven. New Haven Branch, American Society of Mechanical Engineers, 400 Temple Street, New Haven, Conn., in charge.

**Association of Iron and Steel Electrical Engineers.** Sept. 24 to 28. Convention and exhibition, Broadway Auditorium, Buffalo. J. F. Kelly, 1007 Empire Building, Pittsburgh, secretary.

**American Electrochemical Society.** Sept. 27 to 29. Annual meeting, Dayton, Ohio. Dr. Colin G. Fink, Columbia University, New York, secretary.

### October

**National Safety Council.** Oct. 1 to 5. Twelfth annual meeting, New Statler Hotel, Buffalo. W. H. Cameron, 168 North Michigan Avenue, secretary.

**American Society for Steel Treating.** Oct. 8 to 12. Annual convention, Motor Square Garden, Pittsburgh. W. H. Eisenman, 4600 Prospect Avenue, Cleveland, secretary.

**National Association of Farm Equipment Manufacturers.** Oct. 24, 25 and 26. Thirteenth annual convention, Statler Hotel, Cleveland. J. B. Bartholomew, Peoria, Ill., president.

**American Management Association.** Oct. 29 to Nov. 1. Annual convention, Hotel Astor, New York. W. J. Donald, 20 Vesey Street, managing director.

# German Iron Trade in Critical Condition

Shortage of Paper Marks, Which Are Passing Out in Business Transactions—Fuel Imports Increase—  
Statistical Position of Industries of Germany

BERLIN, GERMANY, Aug. 13.—Economic conditions in Germany are rapidly reaching a climax. The situation is already at such a pitch that only great patience on the part of the workers and swift action by the Government will avert a catastrophe. Conditions have become more acute during the past few days as a result of the tremendous increases in cost of commodities. Wages and salaries that are paid out one day have very often lost half their value by the day following. Consequently, employers are forced to pay out wages practically every day, and a great number of the staff is occupied in counting the huge bundles of currency used. The scarcity of mark currency has become pronounced. The Reichsbank is unable to print sufficient, and many companies are, therefore, experiencing great difficulty in paying wages and salaries.

Employment in the metal and engineering industry has altered but little. The Metal Workers Union reports 2.9 per cent unemployed, and 9.9 per cent working on part time. Unemployment is partly a result of the scarcity of raw material and the decrease in domestic business because of advances in prices. The paper mark is rapidly passing out of use except for hour to hour transactions. Many countries, including the General Electricity Co., are compiling accounts and valuing stock in gold marks. Shortage of working capital, which was acute during the exchange crisis of late 1922, is not yet complained of; but industrial and municipal long-term borrowings are done almost exclusively on a rye, coal or gold valuation basis. Of 386,000,000 marks bonds issued in July only 9,000,000 were paper mark issues.

The effect of the Ruhr occupation and the collapse of the mark are also reflected in the German foreign trade balance. The official statistics for June show an increase in imports of about 800,000 tons and a decrease in exports of 40,200 tons. The increased imports are largely composed of coal, which totalled about 3,000,000 tons against 2,500,000 tons in May. Coal imports are now three times the 1922 monthly average. The import of coke has also increased and is about five times the 1922 average. The import of iron ore, however, is only about one-fifth of last years figures, although it has slightly improved in comparison with May. The export of rolled material and heavy hardware has decreased and amounted to 59,171 tons compared with 81,734 tons in May and 193,015 tons, the monthly average last year.

The continued occupation of the Ruhr has given greater importance to the Upper Silesian industry on both sides of the German-Polish frontier. With the decision that the Rheinbaden coal mine remains with Germany, the definite amount of coal that falls to this country can be ascertained at 8.5 per cent of the estimated 90,000 million tons available. Using the 1913 figures as a basis, 23.7 per cent of the coal production, 17.5 per cent of the dressed zinc ore, 29 per cent of the dressed lead ore, and 30 per cent of the blast furnace works remain with Germany.

The changes that had to be affected in Upper Silesia on the new frontier separating German works from their coal mines, and in some cases the production of raw material from the rolling mills and other consuming works are almost completed. Most of the works producing raw material have fallen to Poland, while Germany retains the greater part of the engineering and manufacturing plants. German industry is endeavoring to extend the scope of its manufactures and to bring skilled workmen into the district. The scarcity of dwellings is, however, restricting these efforts at present.

Difficulty is encountered in maintaining the coal

production in the German part of the area, as some of the mines are nearing exhaustion. Sinking of new shafts was projected, but has been postponed because of the excessive cost under present conditions, especially as a large number of homes for workmen would have to be erected. An increase in output can only be effected by improved production and the extension of the existing mines in the Gleiwitz and Hindenburg districts and the Beuthener Valley. The coal produced in this valley is of inferior quality. It is estimated that the output may be increased by about 3,000,000 tons annually in a few years. That would not be more than 10 per cent of the total loss of output to Germany, but it means a 30 per cent increase on the 1913 production from the same area.

The coal production of East Upper Silesia (Poland) has increased lately and totals about 490,000 tons per week, of which about 30 per cent remains in Polish Upper Silesia, while 20 per cent is shipped to other sections of Poland, 6 per cent to German Upper Silesia, 26 per cent to other parts of Germany and 10 per cent to Austria. The rest is going to Switzerland, Austria and Czecho-Slovakia and an effort is being made to increase exports to Denmark, Holland and Sweden. Many technical improvements have been made at the mines, and a large number of houses have been built to provide dwellings for an increase in the number of men employed. From its own part of Upper Silesia, Germany receives about 5,000,000 tons per year. Before the war all Upper Silesia supplied about 20,000,000 tons of coal to Germany. The supplies from all Upper Silesia (Polish and German) are therefore falling considerably short of the tonnage supplied before the war, and the deficiency must be made up by imports from other countries. At present the supply of German rolling stock for the transport of coal from Polish Upper Silesia is wholly inadequate and stocks at the mines are increasing rapidly.

The iron and steel industry in Upper Silesia is handicapped by its unfavorable position for export, and its present boom is entirely a result of the Ruhr situation. A great deal of business has also come to the industry through the depreciation of the mark. Only 30 per cent of the pig iron production, 28 per cent of the rolled iron and steel production, and 43 per cent of the iron and steel foundries remained with Germany. The production of the engineering works in German Upper Silesia is now double the amount of the output of the mills and the foundries, and present development is leaning more toward the finishing side of the industry. Conditions are not favorable for the production of pig iron, especially as there are no iron mines in German Upper Silesia and as the blast furnaces would require complete modernizing to insure profitable production. The industry is not only handicapped by the decline in the exchange and the high cost of transportation, which are both restricting imports of ore, but also by the poor quality of the Upper Silesian furnace coke, which requires low furnaces.

The new frontier also includes in Poland all the Upper Silesian metal furnace works, which means a great loss to Germany, as the lead production of these works has been of considerable importance, furnishing more than two-thirds of the German lead exports in 1913. With the loss of the zinc works Germany has become an importing instead of an exporting country in zinc. The whole production of sulphuric acid, which amounted to 256,000 tons has also gone to Poland, and the coke ovens in the German section now have to import their acid for the production of fertilizers. A lead deposit with an estimated capacity of 6700 tons, on state-owned land in the German area, requires the erec-



tion of lead works, which, because of the abnormal economic situation, will not be possible for some time. The Upper Silesian lead and zinc industries employed about 25,000 men prior to the war, which was about 13 per cent of the number employed in the entire mining industry of Upper Silesia. The pre-war output of the lead mines amounted to 53,000 tons in 1913 and that of the zinc mines to 521,000 tons, which is 48 and 75 per cent of the respective totals of German production. The lead and zinc production of Upper Silesia totalled 40,000 and 168,000 tons respectively.

## EXCHANGE A BELGIAN FACTOR

### Exports Increase, But Domestic Market Is Hectic —Upward Price Tendency—Coke Shortage Still Felt

ANTWERP, BELGIUM, Aug. 11.—The most important feature of the market seems to be the unforeseen rate of exchange. The Belgian franc has been declining rapidly for several days. The dollar is quoted as high as 22.50 fr. and the pound sterling is worth 104 fr., while the ratio with French currency is 132 Belgian to 100 French francs. Such changes greatly disturb parts of the market almost as much for domestic as for export business. For example, British coking coals have become more and more expensive, which is also true of British hematite pig iron, so that for Belgian consumers prices are much higher than a fortnight ago, notwithstanding the decided reductions in England. Export, however, may become possible now for products, which, in the past, could not find an outlet abroad. It is, therefore, quite impossible for an exporter to make a firm offer at present, as future developments in exchange are, at best, speculative. In general, Belgians are optimistic and anticipate a certain recovery of the franc, pointing out that the financial situation is not bad enough to justify a depreciation as great as the present decline. Industry is prosperous and export of finished products is continuing on a larger scale than formerly, so that a higher exchange value of the Belgian franc may indeed become a fact sooner than is expected.

In general, prices are still firm, with a slight upward tendency. Bars range from 750 to 775 fr. per ton; heavy beams 725 to 750 fr.; rods 925 to 950 fr., and heavy sheets 800 and 825 fr. These prices show in general a minimum increase of 25 to 50 fr. per ton. Steel products and thin sheets are particularly scarce for export. Semi-finished products are firm, as several large works are fully booked for several months ahead. British buyers have, however, stopped most of their purchasing. With British prices reduced and the value of the franc declining rapidly, British buyers expect to purchase at still better terms within a few days.

Domestic prices are as follows, per metric ton, f.o.b. maker's works:

Domestic prices are as follows, per metric ton, f.o.b. maker's works:

	Fr.	
Commercial iron No. 2.....	750	\$33.80
Commercial iron No. 3.....	775	35.00
Commercial iron No. 4.....	875	39.40
Heavy sheets .....	750	32.80
Light sheets .....	1,125	50.50
Iron bars .....	750	33.80
Rails .....	750	33.80
Heavy beams .....	725	32.60
Rods .....	900	40.50
Bars, o.-h., ordinary.....	725	32.60
Rounds .....	1,450	65.35
Spring steel .....	1,400	63.00
Ingots, Bessemer .....	550	24.80
Blooms, Bessemer .....	590	26.60
Billets, Bessemer .....	630	28.40
Largets, Bessemer .....	660	29.50

Lorraine works have recently offered ingots and blooms at somewhat lower prices than Belgian mills quoted, but the increasing decline of the Belgian franc soon equalized these quotations with Belgian domestic prices. Some business has been done in finished products for export, prices resulting favorably for producers as a result of the declining exchange. The demand for foundry iron is satisfactory, but not large.

The supply of electricity for industrial purposes comes mainly from the two stations of the Upper Silesian Electric Co. at Chorzow and at Zaborze. The first has gone to Poland and the latter to Germany. Chorzow is producing about 81,000 kw. and Zaborze is being brought up to 47,600 kw. The lines of the company are spreading eastward as far as the former Russian frontier and on the other side over a part of German Upper Silesia. The Genf treaty has not interfered with existing arrangements and simply gave the Polish State the right to acquire the Chorzow works.

Prices have again developed an upward tendency. Makers are not yet disposed to quote for September delivery, as the coke price for this month has not yet been fixed. An increase of price for coke is expected, and as there are no large quantities of pig iron available, prices will undoubtedly follow the upward movement in coke. The following prices on high phosphorus foundry iron, per metric ton, are largely nominal:

	Fr.	
Belgian, No. 3.....	480	\$21.60
Luxemburg, No. 3.....	470	21.20
Lorraine, No. 3.....	470	21.20

It is reported that few works in Luxembourg or Lorraine are quoting these prices now, quotations ranging up to 500 fr. (Belgian) or \$22.50, and 510 fr. (French) or \$23. All these prices are delivered consumer's works or f.o.b. Antwerp. Bessemer pig iron is quoted at 450 to 480 fr., \$20.20 to \$21.60. Available stocks are low and a further increase of price for this grade of iron is expected. British hematite has not been sold in large quantities since the rise in the rate of exchange. Prices have been reduced to 106s. and 108s., c.i.f. Antwerp, or about \$24.40 per ton. These reduced quotations are still too high compared with Belgian and French hematite, which are about 540 fr. (\$24.20) or 106s.

Coal, especially industrial grade, is very scarce. Demand is heavy and prices maintain an upward tendency. Wages have been increased 5 per cent since Aug. 1. Quantities received from Germany during July were not so large as expected. Prices for coke are unchanged for August, as follows:

	Fr.	
Washed coke .....	185.00	\$8.35
Crushed coke .....	215.00	9.70
Heavy coke, half washed.....	160.00	7.40
Ordinary coke .....	144.00	6.50
Special foundry coke.....	195.00	8.70
German furnace coke, at frontier .....	152.50	6.87

The Pennsylvania Water and Power Resources Board has disapproved the application of the Jones & Laughlin Steel Corporation, Pittsburgh, for the construction of a river transportation dock on the Monongahela River at its South Side works, and for permission to build an unloading dock at its Aliquippa works, Woodlawn, Pa. Refusal of the board to approve the projects, which had been approved by the Federal authorities, does not mean the permanent abandonment of the construction. Modification of the plan submitted to the board to overcome its objections probably will be made.

Italy now has 9 coke blast furnaces, and 113 electric steel furnaces of large and medium capacity and 60 small ones. Production in 1922, according to the Association of Metallurgical Industrialists, amounted to 943,000 tons. The total number of employees and workmen engaged by iron and steel working plants is about 100,000, and the capital invested is estimated at \$100,000,000.

The plant of the Palmer Foundry & Machine Co., Palmer, Mass., will be sold at auction under foreclosure proceedings at noon, Sept. 17. For about two years the plant has been operated under the management of William J. Breen, William J. Breen & Co., 148 State Street, Boston, dealers in pig iron, and has been devoted to the production of soil pipe.

# Gradually Reducing the Hours of Labor

Progress in Establishing Three Shifts Being Made at  
Chicago More Rapidly Than Was Expected—  
Some Companies Moving Slowly

CHICAGO, Aug. 28.—Chicago district steel producers continue to make progress in eliminating the 12-hr. shift in their continuous process departments. They are not yet willing to hazard a guess as to the extent to which their costs will be increased under the new plan, because there is no possibility of accurate calculation at this time. Much will depend upon the manner in which the working forces are reorganized and the extent to which labor-saving equipment can be advantageously employed. It is possible that experience will show that men working eight hours can be held responsible for more duties than they discharged under the two-shift plan, and if such be the case, a reclassification of the duties of employees of all ranks may ensue.

One effect of the change to three shifts which has been largely overlooked is the fact that the reduction in the daily wage is to a great extent compensated for by promotions. In recruiting men for shifts, the steel companies are dependent on their old employees for the nucleus of the extra organization. The new men employed are taken on as common laborers, while those who have become familiar with the work are promoted a step or two above their previous rank. The result is

that whereas the new common labor rate is \$4 a day, or 80c. less than the wage for the 12-hr. shift, a majority of the old employees are actually receiving as much or more per day than under the old regime.

Local producers are inclined to revise their original estimates as to the time it will take to eliminate the two-shift plan completely. It was first thought that the change in its entirety might take a year, but it is now believed that the transition can be effected much sooner, labor supply permitting. The Inland Steel Co. has converted three continuous process departments to the three-shift plan. For the blast furnaces, which were the first units to be affected, 150 additional men were employed. For the coke ovens and the open-hearth furnaces, which are not yet fully manned, 100 and 250 new men respectively have been added. Fully 1200 additional employees will be required to put all departments on the new basis, or an increase of 20 per cent in the total enrollment of the plant. Fully 35 per cent of the company's employees at Indiana Harbor were on 10-hr. shifts before the elimination of the 12-hr. turn was inaugurated and these men will not be affected by the change.

## Changes Being Made at Independent Plants

PITTSBURGH, Aug. 27.—Reports to the general offices of the Carnegie Steel Co. here indicate that the elimination of the 12-hr. day in the continuous process departments is working smoothly and that so far it has gone along with no loss of production or of active capacity. The change is said to have caused some increase in costs in some plants, but an actual reduction in others and that present costs do not average materially higher than those under the old working schedules. There has been an ample supply of men for the creation of the extra shift.

The Pittsburgh Steel Co. today began the elimination of the long workday in its open-hearth and blast furnace departments, but is the only independent company in the Pittsburgh district proper which has inaugurated the change. It is reported to be working well with that company, which is pursuing the plan worked out and applied by the Carnegie Steel Co., outlined in THE IRON AGE, Aug. 16. The Jones & Laughlin Steel Corporation is yet to make a start, but probably will in the near future go along with the movement.

### Wheeling Steel Corporation Policy

The Wheeling Steel Corporation has begun the elimination of the 12-hr. day at its various plants, located in this city, Beech Bottom, W. Va., and at Steubenville and Portsmouth, Ohio, but the change is being applied gradually, as according to an official of the corporation consideration must be given to how other companies having plants in the same districts in which plants of the Wheeling Steel Corporation are located are making the shift. This is to avoid possible disruptions of working organizations and also to satisfy the men themselves. There are three classes of labor in the steel plants, this official states. The first embraces those who are satisfied merely to earn enough for their bare existence; the second includes those who, while good workmen, are disposed to spend all they make, and the

third consisting of those who work and save with the hope of some day achieving comfort.

The first type of workman is anxious to earn as much as possible as promptly as possible and if he is able to make enough to sustain himself for a few days, is apt to lay off. The second class embraces a more constant workman, but who because of a desire for some of the luxuries of life, involving the spending of about all that he earns, does not welcome a change of working hours that means some loss of earnings. The thrifty workman is the most desirable type, since he will readily adjust himself to the new working order, but unfortunately, there are few plants in the country where such men are in the majority. It will take time to work out a plan of procedure which will satisfy all of the men and it is the attitude of the Wheeling Steel Corporation that it is better to make the change slowly and be sure of its ground first rather than run into trouble by too prompt application of an untried plan. Since the disposition of most of the men involved in the reduction of working hours prefer the longer day with its greater compensation, the Wheeling corporation cannot move any faster than any of its nearby competitors, since the men would seek work in the plants where the longer day was continued.

The H. D. Conkey Co., Mendota, Ill., has appointed the Florandin Equipment Co., 110 West Fortieth Street, New York, district sales agent for its line of hand power and small capacity electric cranes. The Florandin Equipment Co. is also New York district sales representative for the American Engineering Co., Philadelphia, manufacturer of electric hoists.

Agnew, Batteiger & Co., Widener Building, Philadelphia, merchants in coal, coke, ores, alloys, fluxes, pig iron, scrap and kindred materials, announce the opening of an office at 1601 Oliver Building, Pittsburgh, in charge of M. E. Nolan as district manager.



# Iron and Steel Markets

## AUGUST BUYING BETTER

### Railroad, Structural and Automobile Demands Lead

#### Production Somewhat Less—Generally Stable Prices in Finished Lines

As August ends, the volume of new business in rolled steel shows an increase, making the month a better one than July for most producers. The improvement seen in the past week has not been uniform, being more marked in the case of some independent companies whose order books for some time have carried relatively less business than those of the Steel Corporation.

A stiffening in coke prices has come with the increasing prospect of an anthracite strike, and the appearance of a larger demand for by-product coke for domestic use. But the capacity of bituminous mines has been so much in excess of the demand that with pig iron production still declining blast furnaces have shown no haste to contract for fourth quarter coke. Admittedly an anthracite strike would tend to eliminate some of the soft spots in pig iron, but stocks of iron are large and lately have increased.

A further decline in both steel and pig iron production took place in August. The Steel Corporation is running today at 85 to 90 per cent of its capacity in steel ingots, while the principal independent companies are on a 75 to 80 per cent basis. August operations of the leading independent averaged 75 per cent.

There is a general expectation in the steel trade of larger buying in September, in view of indications that manufacturing consumers have been drawing on their stocks while with few exceptions they have taken full deliveries from the mills.

Prices of finished steel are holding in a way indicating no material change from the present level in the next few months. The weakness in sheets that has lasted since early summer is still in evidence, but plates, shapes, bars, wire products, tin plate and pipe are practically without change. In northern Ohio a \$40 price on slabs appeared in one transaction and in New England billets have been bought at \$40, Pittsburgh, without effect on the general market.

The outstanding feature of the market is the promptness of the deliveries some mills are able to give. Under such conditions buyers naturally keep close to the mills and hold their stocks down.

Western roads have placed 35,000 tons of additional rails for 1924 and a frog and switch works has bought 12,000 tons of rails and 5000 tons of bars. New inquiries include 35,000 tons for the Canadian National Railways and 10,000 tons for the Baltimore & Ohio. Of the Norfolk & Western's 50,000 tons bought recently about 21,000 tons went to Bethlehem and most, if not all, of the remainder to the Steel Corporation.

With the outlook generally unpromising for rolling stock orders, one road has just bought 200

cars, another has practically closed on 500, and a third has entered the market for 610. The average of weekly purchases in the last two months has been less than 400 cars.

Fabricated steel bookings of the past week exceeded 43,000 tons, the largest total since the first week of June. One item was 22,000 tons for the first section of the Central Railroad of New Jersey bridge over Newark Bay. Of 14,000 tons of fresh inquiries, railroad bridge work calls for 3500 tons.

The cost of boats is holding back business from the yards on the Great Lakes. In the past week at Cleveland prices were asked on 10,000 tons of steel for two freighters, but three days later it was withdrawn when the inquiring vessel interests decided not to build.

Automobile manufacturers are placing liberal orders for both soft steel and alloy steel bars, as well as for sheets and strip steel, and in some cases have contracted for fourth quarter requirements. Drop forging plants which largely serve the automotive industry are also in the market for steel bars. They estimate their needs for the fourth quarter will exceed their present rate of consumption.

The report that the American Sheet & Tin Plate Co. had opened its books for fourth quarter business was premature. The impression is general that present prices will be retained, however. In the bar market a reported Buffalo quotation f.o.b. mill instead of Pittsburgh has caused a ripple.

Despite conservative buying in pig iron throughout the country, the total placed in Chicago in August was larger than for any month since spring, and that market was quite active last week. At Pittsburgh orders for basic amounted to 10,000 tons, and buying for cast iron pipe plants in Ohio footed up 10,000 tons. At Cincinnati and Cleveland further price concessions were reported.

Blast furnaces have been blown out at Joliet, Ill., Columbus, Ohio, Ashland, Ky., and Milwaukee, and others are expected to go on the idle list soon.

The scrap market has grown more active and prices have advanced in some centers, but business is largely between dealers.

## Pittsburgh

### Pig Iron More Active—Dealers Pay More for Scrap—Coke Is Firmer

PITTSBURGH, Aug. 28.—A fairly cheerful tone still pervades the steel situation, due to the fact that both inquiries and sales show some increase as compared with last month, and this is taken to mean that buyers who long have been expecting some weakening in prices have come to the conclusion that elimination of the 12-hr. day means an increase in costs sufficient to prevent much price cutting. This inference does not recognize the law of supply and demand, and on the other side of the picture is the well-established belief, finding some support by leading manufacturers, that higher prices are not immediately ahead. Lacking the stimulus of a possible advance in prices, buyers are expected

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	Aug. 28, 1923	Aug. 21, 1923	July 31, 1923	Aug. 29, 1922
No. 2X, Philadelphia...	\$26.20	\$25.76	\$26.26	\$34.14
No. 2, Valley furnace...	25.00	25.00	25.00	33.00
No. 2, Southern Cin'tit...	27.55	27.55	28.05	27.05
No. 2, Birmingham, Ala.†...	24.00	24.00	24.00	23.00
No. 2 foundry, Chicago*	27.00	27.00	27.00	30.00
Basic, del'd, eastern Pa...	25.00	25.00	25.50	28.64
Basic, Valley furnace...	25.00	25.00	25.00	30.00
Bessemer, Pittsburgh...	28.26	28.26	28.26	33.76
Malleable, Chicago*	27.00	27.00	27.00	30.00
Malleable, Valley...	24.50	24.50	24.50	33.00
Gray forge, Pittsburgh...	25.76	25.76	26.26	34.76
L. S. charcoal, Chicago...	32.15	32.15	32.15	36.15
Ferromanganese, del'd...	117.50	117.50	117.50	67.50

Rails, Billets, Etc., Per Gross Ton:	Aug. 28, 1923	Aug. 21, 1923	July 31, 1923	Aug. 29, 1922
O.-h. rails, heavy, at mill...	\$43.00	\$43.00	\$43.00	\$40.00
Bess. billets, Pittsburgh...	42.50	42.50	42.50	38.00
O.-h. billets, Pittsburgh...	42.50	42.50	42.50	38.00
O.-h. sheet bars, P'gh...	42.50	42.50	42.50	38.00
Forging billets, base, P'gh...	47.50	47.50	47.50	43.00
O.-h. billets, Phila...	47.67	47.67	47.67	45.17
Wire rods, Pittsburgh...	51.00	51.00	51.00	45.00
Skelp, gr. steel, P'gh, lb...	2.40	2.40	2.40	2.00
Light rails at mill...	2.25	2.25	2.25	2.00

Finished Iron and Steel, Per Lb. to Large Buyers:	Aug. 28, 1923	Aug. 21, 1923	July 31, 1923	Aug. 29, 1922
Iron bars, Philadelphia...	2.67	2.67	2.67	2.325
Iron bars, Chicago...	2.40	2.40	2.50	2.25
Steel bars, Pittsburgh...	2.40	2.40	2.40	2.00
Steel bars, Chicago...	2.60	2.60	2.60	2.35
Steel bars, New York...	2.74	2.74	2.74	2.34
Tank plates, Pittsburgh...	2.50	2.50	2.50	2.00
Tank plates, Chicago...	2.80	2.80	2.80	2.20
Tank plates, New York...	2.84	2.84	2.84	2.34
Beams, Pittsburgh...	2.50	2.50	2.50	2.00
Beams, Chicago...	2.70	2.70	2.70	2.35
Beams, New York...	2.84	2.84	2.84	2.34
Steel hoops, Pittsburgh...	3.15	3.15	3.15	2.75

\*The average switching charge for delivery to foundries in the Chicago district is 70c. per ton.  
†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	Aug. 28, 1923	Aug. 21, 1923	July 31, 1923	Aug. 29, 1922
Sheets, black, No. 28, P'gh...	3.75	3.75	3.75	3.35
Sheets, galv., No. 28, P'gh...	5.00	5.00	5.00	4.35
Sheets, blue an'l'd, 9 & 10	3.00	3.00	3.00	2.50
Wire nails, Pittsburgh...	3.00	3.00	3.00	2.60
Plain wire, Pittsburgh...	2.75	2.75	2.75	2.35
Barbed wire, galv., P'gh...	3.80	3.80	3.80	3.15
Tin plate, 100-lb. box, P'gh...	\$5.50	\$5.50	\$5.50	\$4.75

Old Material, Per Gross Ton:	Aug. 28, 1923	Aug. 21, 1923	July 31, 1923	Aug. 29, 1922
Carwheels, Chicago...	\$19.50	\$19.50	\$20.00	\$22.50
Carwheels, Philadelphia...	21.00	20.00	20.00	19.00
Heavy steel scrap, P'gh...	18.00	18.00	17.00	18.50
Heavy steel scrap, Phila...	10.50	16.00	16.00	15.50
Heavy steel scrap, Ch'go...	16.00	16.00	16.50	17.00
No. 1 cast, Pittsburgh...	21.50	21.50	20.00	19.00
No. 1 cast, Philadelphia...	21.50	20.00	20.00	19.00
No. 1 cast, Ch'go (net ton)	18.50	17.50	18.50	20.00
No. 1 RR. wrot. Phila...	18.00	18.00	18.00	18.50
No. 1 RR. wrot. Ch'go (net)	15.00	14.00	14.00	15.50

Coke, Connellsville, Per Net Ton at Oven:	Aug. 28, 1923	Aug. 21, 1923	July 31, 1923	Aug. 29, 1922
Furnace coke, prompt...	\$4.75	\$4.50	\$4.25	\$10.00
Foundry coke, prompt...	5.50	5.50	5.25	12.00

Metals, Per Lb. to Large Buyers:	Aug. 28, 1923	Aug. 21, 1923	July 31, 1923	Aug. 29, 1922
Lake copper, New York...	14.25	14.25	14.37½	14.12½
Electrolytic copper, N. Y...	13.75	13.75	14.37½	13.75
Zinc, St. Louis...	6.42½	6.45	6.30	6.25
Zinc, New York...	6.77½	6.80	6.65	6.60
Lead, St. Louis...	6.65	6.45	6.65	5.55
Lead, New York...	6.75	6.70	6.75	5.90
Tin, New York...	40.75	39.37½	38.75	32.30
Antimony (Asiatic), N. Y...	7.50	7.62½	7.70	5.25

Composite Price Aug. 28, 1923, Finished Steel, 2.775c. Per lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets	Aug. 21, 1923, 2.775c. July 31, 1923, 2.775c. Aug. 29, 1922, 2.412c. 10-year pre-war average, 1.689c.
These products constitute 88 per cent of the United States output of finished steel	

Composite Price Aug. 28, 1923, Pig Iron, \$25.38 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham	Aug. 21, 1923, \$25.29 July 31, 1923, 25.38 Aug. 29, 1922, 29.52 10-year pre-war average, 15.72
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by not a few to confine their takings to nearby requirements. So while the last quarter of the year probably will be better in respect to new business than the current one, no such rush of buying as marked the first quarter of the year is expected.

Shifting from the long to the short workday in the continuous process departments of the steel industry still is slow, save in the case of the two larger local subsidiaries of the Steel Corporation. A true measure of what the change means in the way of costs cannot yet be taken, but there has been no loss of active capacity, nor appreciable loss of production, and not much variation in costs with at least one of these units. An announcement that the American Sheet & Tin Plate Co. had opened its books for fourth quarter business in sheets and tinplate carried by daily papers was premature, but the impression is pretty general that this company will continue present quotations when it does formally open its books for orders.

Another week has gone with no change in finished steel prices, although there have been reports that a Buffalo maker of bars is quoting f.o.b. mill, instead of Pittsburgh, which would mean a lower Pittsburgh equivalent on Eastern business. It may be safely said that the market is no easier as to prices, but it is easier on

practically all products as to deliveries. Plates are available from some mills as promptly as a week or days. Specifications against old tonnages are increasing, but all new business coming out is for prompt delivery, and present competition is greater in deliveries than on prices. Reports are increasing in numbers that less than the quoted prices on semi-finished steel is being done, but positive evidence of shading is difficult to uncover for reasons given elsewhere.

The pig iron market is more active both as regards sales and inquiries, but all sales are not yet at the prices that makers are asking. As far as this and nearby districts are concerned, the supply of pig iron exceeds probable requirements over the remainder of the year, and only through a reduction in the production or the appearance of buying from outside districts will prices stiffen.

Dealers are paying more for scrap than the mills, but unless there is a supporting demand from the latter it is hard to figure how the prices made on dealer purchases can be maintained.

Possibility of a strike of the anthracite coal miners with the attendant demands upon coke and soft coal as substitutes are responsible in a large measure for firmness in the local situation.



**Pig Iron.**—Sales of basic iron closed in the past week total 10,000 tons, which is the largest of any week in several months. Included in the business was one lot of 5000 tons of standard basic, 1 per cent and under in silicon, at \$25 Valley furnace, to a furnace interest buying against its inability to fully meet its contractual obligations; 1000 tons to a Sharon, Pa., melter at the same price and about 4000 tons to another Sharon, Pa., melter, who was able to buy the tonnage outside the Valley at a delivered price of \$25, which is equivalent to \$24.50, Valley furnace basis. It is said that this latter lot of iron was not strictly standard in analysis, running up to 1.25 in silicon. But this not being the report of the buyer, it is barely possible it is an excuse for a low-priced sale. All Valley makers are holding firmly to \$25 for basic, but this sale at a lower equivalent price removes the buyer from the market to the extent of his purchase and makes harder sales at the quoted figure. A Brackenridge, Pa., steel company is said to be looking for 5000 tons of basic. This interest recently bought a small tonnage of Bessemer iron at \$25.50, furnace, but it was not, it is said, strictly standard iron. The Monongahela Iron & Steel Co. has an inquiry out for 1000 tons of Bessemer for last quarter shipment. On Valley iron of this grade \$26.50 is as low as any sales are reported. The Westinghouse Electric & Mfg. Co. closed for 250 tons of No. 2 foundry for its Cleveland plant at \$25.50, Cleveland furnace. This company has entered the market for 500 tons each of No. 1 and No. 3 foundry and 200 tons of No. 2 for September delivery to its Trafford, Pa., works. It has been quoted a delivered price \$26.13 on No. 2, and 50c. above on the No. 1 and 50c. below on the No. 3. This would mean that Valley furnaces would have to go to \$24.37 at furnace to match that price on No. 2, as against the present minimum of \$25, Valley, on that grade. As high as \$26 is asked, but only rarely obtained. The most recent business in malleable iron was at \$24.50, against asking prices up to \$26. The National Transit Pump & Machinery Co., Oil City, Pa., is in the market for 1200 tons of No. 2 foundry for September delivery.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.76 per gross ton:

Basic .....	\$25.00
Bessemer .....	26.50
Gray forge .....	\$24.50 to 25.50
No. 2 foundry .....	25.00 to 26.00
No. 3 foundry .....	24.50 to 25.50
Malleable .....	24.50 to 25.50
Low phosphorus, copper free....	32.00

**Ferroalloys.**—This market is absolutely without change. A domestic producer of ferromanganese recently took an order for a single carload at \$117.50, furnace, for shipment to Utah. This is the only sale of this material noted here lately, and it is a surprise, since resale material could have been had for much less. Few consumers of ferroalloys lack sufficient supplies to carry them through the remainder of the year and possibly longer, since present indications are that steel works operations will be on a smaller scale in the last quarter than they have been since the year began. There is no interest yet in 1924 requirements. Prices are unchanged, but they are merely nominal. They are given on page 575.

**Semi-Finished Steel.**—It is difficult to uncover real evidence of any lower prices than the mills for several weeks have been quoting. There are reports that business in billets, sheet bars and slabs has been lost at \$42.50, but whether purchases actually were made at less is not ascertainable. It is also intimated that self-contained sheet makers, lacking an outlet for finished sheets up to the steel supply, have welcomed orders for sheet bars at \$40. Neither buyers nor producers of sheet bars are disposed to admit lower prices, the former because of the possible effect upon sheet prices and the latter because it might lead to adjustment of prices on contract tonnages. Much is heard as to the probable effect of higher labor costs incident to the introduction of the shorter workday in steel works and blast furnace departments, but no very convincing testimony has been presented and buyers incline to the belief that if lower prices are ahead, based on supply and

demand, the change in working hours will not prevent them. Open market activity still is limited in all kinds of semi-finished steel, particularly forging billets, which reflect the between models period in the automotive industry. Prices are given on page 575.

**Wire Products.**—Order books of most makers still are dwindling, as new orders are not coming along nearly so fast as old ones are being completed. The leading interest now is promising nails in four weeks and independents can make deliveries as early, if not a little earlier. There is a better order book in manufacturers' wire than in any of the other products, with coated nails running next in point of standing orders. Demands from the agricultural districts still are light and a moderate fall business now is expected from that source. Efforts to stimulate orders on the basis of a possible advance on account of the change in working hours in the steel works and around blast furnaces have been unfruitful, but reports that nails have sold below \$3 base, per keg, are denied. Prices are given on page 574.

**Steel Rails.**—Makers of light rails, rolling them from new billets, insist that such business as they are getting is at 2.25c., base, for 25 to 45-lb. sections. One maker here reports a sale of 500 tons at that figure. It remains something of a mystery how that price can be maintained with rerolled light rails available at from 1.90c. to 2c., base, which in these rails calls for sections anywhere from 12 to 45-lb. per yd.

We quote light rails rolled from new steel at 2.25c. base (25-lb. to 45-lb.); those rolled from old rails, 1.90c. to 2c. base (12-lb. to 45-lb.), f.o.b. mill; standard rails, \$43 per gross ton mill, for Bessemer and open-hearth sections.

**Cold-Finished Steel Bars and Shafting.**—The market still is rather slow as far as new business is concerned and is not overly active with regard to specifications. Consuming industries received pretty heavy shipments over the first half of the year and now are disposed to reduce rather than add to their inventories, particularly as there is nothing in sight to suggest that there will be any serious interference with production and shipments over the remainder of the year. There is good adherence to quoted price of 3.25c. base, but much material still is owed against lower-priced purchases and their is a disposition by buyers to seek shipments on these purchases rather than to make fresh commitments. Revision of extras on hexagon hot-rolled bars was pretty steep and some members of cold-finished bars believe extras on cold-finished hexagons should be increased. Ground shafting holds at 3.65c., base, f. o. b. mill, for carload lots.

**Bolts, Nuts and Rivets.**—The proposed advances in list prices of bolts and nuts, scheduled to take effect Sept. 1, which discount the increases in bar costs involved in the standard extras card recently adopted, are partly offset by the fact that discounts lately have been increased. Competition for business still is so keen that large machine bolts have sold as low as 60 and 10 per cent off list and the published quotation now is 60 and 5 per cent off list, as against 50 and 2 tens, the former public quotation. Rivets also are weak, due to the fact that a number of makers have slim order books and want business. The outside quotations are more of an ornament than selling bases. Prices and discounts are given on page 574.

**Iron and Steel Bars.**—Reports that the price of steel bars has been shaded \$1 a ton and that some mills are quoting f.o.b. mill instead of Pittsburgh, cannot be confirmed. Buying is not heavy, but buyers are specifying fairly well on old tonnages. The quoted price carries very prompt delivery with several makers. Iron bars are holding at former prices.

We quote soft steel bars, rolled from billets, at 2.40c. base; bars for cold-finishing of screw stock analysis, \$3 per ton over base; reinforcing bars, rolled from billets, 2.40c. base; refined iron bars, 3.25c. base, in carload lots or more f.o.b. Pittsburgh.

**Tin Plate.**—The common impression is that present prices will be continued on fourth quarter tonnages, this being based upon the promise that few mills will complete their third quarter orders within the period.

Much oil can and general line tin plate has been backed up by the fact that food container requirements right along have been given preference in production and shipments.

**Hot-Rolled Flats.**—The market is a shade stronger as a result of the fact that the past few weeks have been productive of increased orders. As a general rule, makers now are holding firmly to 3.15c. base for hoops, bands and strips, save in the wider sizes of the latter, where competition from skelp and blue annealed sheets is sometimes met. Hot-rolled strips for cold rolling, of course, sell at 3c. base. Price of cotton ties advances a cent a bundle next Saturday. Prices are given on page 574.

**Cold-Rolled Strips.**—There is enough business to go around and concessions from the regular base of 5c., Pittsburgh, are too infrequent to be worthy of notice.

**Track Fastenings.**—Fair demand is observed for large spikes, but activity is lacking in other lines under this heading. Prices are showing no change. They are given on page 574.

**Structural Material.**—Fabricating shops are seeking protection against a fairly large amount of plain material, but actual orders still are moderate. Not much structural business is active in this immediate territory, but there is a fair run of small jobs, and with some railroad bridges appearing, the trade is cheerful, especially as inquiries are fairly numerous. Plain material prices are given on page 574.

**Plates.**—There is close adherence to the quoted price, although most of the orders coming out are for small tonnages and these for very early delivery. About 2500 tons of plates will be required for 19 barges for the U. S. Engineers', Louisville, Ky., office, bids on which will be opened Sept. 11. Prices are given on page 574.

**Tubular Goods.**—The story still is one of active pressure upon the market for deliveries against old orders, but only a moderate amount of buying and this for small tonnages for early delivery. Most of the steel pipe makers find it difficult to keep their customers fully supplied; at least, letters from the latter still indicate they could dispose of more tonnage than they are getting and it is considered unlikely there would be this pressure for shipments if consumption were materially lighter than it has been. Present production of the leading interest of all kinds of tubular goods is practically at capacity and shipments are in keeping with output. Discounts are given on page 574.

**Sheets.**—The leading interest notes a considerable quickening of interest on the part of its customers, but this is not altogether the experience of the independents, some of which still are finding orders and inquiries few. Specifications are heavier with practically all makers, but not much fourth quarter business is coming out, probably because of a desire by buyers to see what the prices are going to be. The lack of black sheet business still is noticeable. A better supply of men has enabled the leading producer to slightly increase production. Prices are given on page 574.

**Coke and Coal.**—Furnace coke for spot delivery is in scant supply and while demands are few they are sufficient to keep prices very firm. Some tonnage is still available at \$4.75 per net ton at ovens, but some producers, sensing a demand for coke to replace hard coal in the event of a strike of the hard coal miners, are turning to producing coke for domestic uses and are not interested in furnace business at less than \$5. Foundry coke for prompt delivery still is quoted at \$5.50 to \$6 at ovens. Negotiations for fourth quarter tonnages of furnace coke are not yet making much progress, buyers being held in check by uncertainty as to the future of the pig iron market. Much strength marks the coal market in the domestic sizes; indeed, the market as a whole is helped by the possibility of a strike of the hard coal miners. We quote mine run steam coal at \$2.15 to \$2.40 and mine run gas and

coking coal from \$2.25 to \$2.50. Lump coal commands \$2.50 to \$2.75 for  $\frac{3}{4}$ -in. and \$3 to \$3.50 for 1 $\frac{1}{4}$ -in.

**Old Material.**—There are two distinct markets in scrap iron and steel at present, one made by dealers and the other by the mills. The highest price paid recently on heavy melting steel by a melter was \$18.50, delivered, Midland, Pa., and this on a very small tonnage. Dealers have been offering that price and even \$19 for tonnages for shipment against old contracts to other points in the district. This movement is regarded in well-informed circles as nothing more or less than an effort by dealers to boost the market for the purpose of unloading some of the low-priced material recently accumulated. Signs of the effort are seen in some of the originating points, notably Detroit, where dealers, glad recently to sell machine shop turnings at \$7, Detroit, now are holding them at \$10 or more, this being equal to \$14.25, delivered Pittsburgh. Melters generally are buying close to actual needs and there are no signs of an early abandonment of this policy.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel.....	\$18.00 to \$18.50
No. 1 cast, cupola size.....	21.50 to 22.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa. ....	19.00 to 20.00
Compressed sheet steel.....	16.50 to 17.00
Bundles, sheets, sides and ends..	15.50 to 16.00
Railroad knuckles and couplers..	22.00 to 22.50
Railroad coil and leaf springs...	22.00 to 22.50
Low phosphorus bloom and billet ends .....	24.00 to 24.50
Low phosphorus plate and other material .....	23.00 to 23.50
Railroad malleable .....	19.00 to 19.50
Steel car axles .....	21.00 to 21.50
Cast iron wheels.....	19.00 to 19.50
Rolled steel wheels .....	22.00 to 22.50
Machine shop turnings .....	11.75 to 12.25
Sheet bar crops .....	21.00 to 21.50
Heavy steel axle turnings.....	15.00 to 15.50
Short shoveling turnings.....	14.50 to 15.00
Heavy breakable cast.....	18.50 to 19.00
Stove plate .....	15.50 to 16.00
Cast iron borings .....	15.00 to 15.50
No. 1 railroad wrought.....	14.00 to 14.50
No. 2 railroad wrought.....	18.00 to 18.50

## Earnings of Lake Superior Corporation Show Increase

Net earnings from the operation of the subsidiary companies of the Lake Superior Corporation, Sault Ste. Marie, Ont., excluding the Algoma Central & Hudson Bay Railway Co., showed a big increase over the previous year, according to the annual report just made public for the fiscal year ended June 30, 1923. These earnings, however, were largely wiped out by the deduction of the deficit from the previous year. The results of the year again failed to permit of payments of interest on the income bonds.

The net earnings for the year totaled \$866,582, which compares with \$330,000 from similar sources for the previous year. There was deducted from these earnings the sum of \$763,813, which was the deficit brought forward from the previous year. This left a total available for distribution of \$102,768. After a deduction of dividends and interest on bonds, on bank and other advances and rentals, along with amounts set aside for depletion and depreciation of properties, as well as the income tax, the deficit for the year amounts to \$1,307,949, as against \$763,813 a year ago.

A survey of operations over the year under review, according to President W. H. Cunningham, showed conditions much the same as in the preceding year in the Algoma Steel Corporation, Ltd. "The rail mill was closed down from Sept. 1 to Feb. 19," the President points out, "and since resumption the mill has been operated at capacity. The 18-in. mill was closed down for more than half a year on account of lack of orders and for the greater part of the remainder of the time was on single turn. The 12-in. mill operated for about three months on a single turn, and for the remainder of the period was closed."



## Chicago

### August Makes Good Showing in Pig Iron Sales—Rail Buying Continues

CHICAGO, Aug. 28.—Buying by the railroads continues to be the feature of the market. Orders from Western roads for 35,000 tons of rails bring the total placed within the last two weeks up to 103,000 tons. In addition a frog and switch manufacturer has closed for 12,000 tons of rails, as well as 5000 tons of soft steel bars.

There are still no signs of a revival of railroad car buying, but builders look for inquiries to appear some time in September. There is some doubt as to the extent of the orders which can be expected in view of the attitude of certain carriers toward prices. One important Western line recently decided to postpone buying when investigation showed that car specialties alone had advanced an average of 40 per cent over six months ago, or a total of approximately \$200 per car.

New oil storage tank inquiries call for 6000 tons of plates and a number of promising fabricating projects have appeared. A plant for the Ford Motor Co. at River Rouge will involve 3700 tons, and a lock and dam at Lockport, Ill., will require 2150 tons. For a local sewage disposal plant 6250 tons of reinforcing bars were placed with a local mill. A number of the leading automobile companies are buying rather liberally, in some cases for the remainder of the year, indicating that their orders for new models have been in good volume. Inquiries for finished steel from all sources are more numerous, but current bookings of mills still fall short of shipments. Producers are gradually catching up on their deliveries, and the leading interest, which continues to quote 2.50c. on bars and 2.60c. on plates and shapes, is probably not more than three months behind on those commodities. The foremost independent expects to announce its fourth-quarter prices tomorrow.

Additional blast furnace capacity has become idle during the past week, but steel output is substantially unchanged. The blowing out of a blast furnace at Joliet reduces the active list of the Illinois Steel Co. to 24 out of 27 steel works stacks. It has also put out its merchant furnace at Bayview. Its steel production, however, continues at the rate of 92 per cent of ingot capacity. The output of the Inland Steel Co. remains unchanged at between 75 and 80 per cent.

**Pig Iron.**—Buying continues to broaden and orders for fourth quarter are more numerous, indicating increasing confidence in present prices. In few instances, however, are melters contracting for their full normal requirements, but this is probably due to the fact that orders for castings are slow in coming in. While foundry operations in this territory are well maintained, melters are hampered in gaining their future needs by a hand to mouth buying policy which extends to the ultimate consumer. Notwithstanding the caution which has characterized purchases of pig iron during the past month, the tonnage placed in August was the heaviest since last spring. Sales of all producers in this section are believed to exceed 125,000 tons. As the month draws to a close, a number of sales of fair size are being made. A Milwaukee plant has ordered 3000 tons of foundry and 100 tons of 7 per cent silvery. An Indiana automobile maker has closed for 1400 tons of silvery. A local buyer for plants located throughout the country has placed a total of 3800 tons of various grades. Of this amount, 1000 tons of low phosphorus and 500 tons of malleable are for works in this territory. For an Ohio works 1000 tons of basic is understood to have been placed at less than \$25, Valley furnace, while 1000 tons of low phosphorus for an eastern Pennsylvania destination brought less than \$28.75, delivered. Three hundred tons of 14 to 16 per cent electrolytic ferrosilicon for delivery at various plants is reported to have been closed at \$42.50, f.o.b. New York State furnace. A Wisconsin melter has closed for 800 tons of malleable for fourth quarter and a North Chicago user for 1500 tons of foundry iron for the same period. Local prices are steady at \$27 base,

Chicago furnace. Milwaukee district stacks, however, have taken some business recently at \$27, f.o.b. furnace, thereby giving melters in that immediate section the advantage of the difference between the freight from Chicago and the local switching charge. The Bayview furnace at Milwaukee has been blown out, leaving only two active stacks in that district, the Thomas furnace and one Mayville furnace. No sales of southern iron are reported. A local cast iron pipe company has closed for 10,000 tons of off-grade iron for its Ohio plants at a reported price of less than \$24.50, Valley.

Quotations on Northern foundry high phosphorus malleable and basic irons are f.o.b. local furnace and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yard or when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging	
sil. 1.50, delivered at Chicago..	\$32.04 to \$32.15
Northern coke, No. 1, sil. 2.25 to	
2.75 .....	27.50
Northern coke, foundry No. 2, sil.	
1.75 to 2.25 .....	27.00
Malleable, not over 2.25 sil. ....	27.00
Basic .....	27.00
High phosphorus .....	27.00
Southern No. 2 .....	29.51 to 30.01
Low phos., sil. 1 to 2 per cent,	
copper free .....	34.00 to 35.00
Silvery, sil. 8 per cent .....	\$9.29

**Ferroalloys.**—Outside of a few car lot sales of spiegeleisen and a car of resale manganese sold at \$115, seaboard, the ferroalloy market has been without features.

We quote 80 per cent ferromanganese, \$125.06 to \$125.88 delivered from producers; \$122.56 delivered resale; 50 per cent ferrosilicon, \$88 to \$90, delivered; spiegeleisen, 18 to 22 per cent, \$53.58, delivered.

**Plates.**—Two inquiries from California for 10 oil storage tanks each involve an aggregate of 6000 tons of plates. This is the only tank business of any consequence pending. A local railroad has closed for 1000 tons of plates, shapes and bars for car repairs. The carriers in this section have practically completed their repair programs, but Southwestern roads contemplate considerable additional work. No orders or inquiries for new cars are reported, however. Inquiries for plates from the general trade are somewhat more numerous, but mills are still booking less than they are shipping. Deliveries are slowly improving, although prices are unchanged and firm. At 2.60c., Chicago, plates can now be bought for delivery in three months and in occasional instances for earlier shipment when the specifications desired fit into existing rolling schedules. The leading independent, which continues to quote 2.80c., Chicago, expects to open its books for fourth quarter during the current week.

The mill quotation is 2.60c. to 2.80c., Chicago. Jobbers quote 3.30c. for plates out of stock.

**Cast Iron Pipe.**—New bookings of pipe makers are declining for the reason that purchases made at this time of the year consist largely of small sizes for small extensions to existing water works or gas systems or to supplement tonnage ordered earlier. As pipe producers are heavily booked in the smaller size, prices on those dimensions are very firm, while the larger sizes are somewhat easier. Chicago takes bids Sept. 5 on 860 tons of 6, 8 and 18-in. Detroit has awarded 1505 tons of 8-in. to the Lynchburg Foundry Co. and 1375 tons of 6-in. delavaud centrifugal pipe to the United States Cast Iron Pipe & Foundry Co. The latter company has also booked 1000 tons of 24-in. for Cleveland, 500 tons of 6 and 8-in. for Hibbing, Minn., and 160 tons of 4, 6 and 8-in. for Elms, Mich. The National Cast Iron Pipe Co. has taken 220 tons of 4, 6 and 8-in. for Joy, Ill.; 165 tons of 12-in. for Evansville, Ind., and 200 tons of 6-in. for Flint, Mich.

We quote per net ton, f.o.b. Chicago, as follows:  
Water pipe, 4-in., \$64.20; 6-in. to 12-in., \$60.20;  
above 12-in., \$57.20 to \$59.20; class A and gas pipe,  
\$5 extra.

**Sheets.**—The market remains quiet and unchanged in its general features. Japanese buyers are understood to have placed a considerable quantity of light black sheets with mills in the East at prices which were not attractive to Western mills which had a big freight disadvantage to absorb. Local mills, which have not been factors in the market for some time, are expected to open their books for fourth quarter soon. Inquiries for that delivery received by the local inde-

pendent indicate that its available tonnage will be absorbed by its regular customers.

Mill quotations are 3.85c. for No. 28 black, 3c. for No. 10 blue annealed and 5c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote, f.o.b. Chicago, 4.35c. for blue annealed, 5.20c. for black and 6.35c. for galvanized.

**Structural Material.**—Although fabricating lettings fell off during the past week, several promising inquiries appeared. The new plant building for the Ford Motor Co. at River Rouge, Mich., will require 3750 tons, and it is understood that three additional units of the same size are contemplated. A lock and dam at Lockport, Ill., for the waterways division of the State Department of Public Works will involve 2150 tons. An inquiry from Milwaukee for a coal unloader calls for 1700 tons. Plans for the Ford Motor Co. plant at St. Paul are to be completely revised. The original specifications called for 10,000 tons.

The mill quotation on plain material is 2.60c. to 2.70c., Chicago. Jobbers quote 3.30c. for plain material out of warehouse.

**Bars.**—Automobile manufacturers are placing liberal orders for both soft steel and alloy steel bars, as well as for sheets and strip steel, and in some cases have contracted for their fourth quarter requirements. Drop forging plants, which, in large part, serve the automotive industry, are also in the market for soft steel bars and estimate that their fourth quarter needs will exceed their present consumption. A local frog and switch manufacturer has placed an order with a local mill for 5000 tons of bars. Railroad purchases of bars for car repair work, however, have fallen off.

Mill prices are: Mild steel bars, 2.50c. to 2.60c., Chicago; common bar iron, 2.40c. Chicago; rail steel, 2.30c. Chicago mill.

Jobbers quote 3.20c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars and shafting is 4.55c. for rounds and 5.95c. for flats, squares and hexagons.

Jobbers quote hard and medium deformed steel bars at 3c. base; hoops, 4.55c.; bands, 3.95c.

**Wire Products.**—The expected fall seasonal demand has not yet made its appearance and mills are catching up on their deliveries on barbed wire, netting, woven wire fencing, and to a less extent on nails. Dealer demand for nails has fallen off in agricultural sections, but is as urgent as ever in industrial centers where building work is still active. For mill prices, see finished iron and steel, f.o.b. Pittsburgh, page 574.

We quote warehouse prices f.o.b. Chicago: No. 6 to No. 9 bright basic wire, \$3.90 per 100 lb.; extra for black annealed wire, 15c. per 100 lb.; common wire nails, \$3.80 per 100 lb.; cement coated nails, \$3.25 per keg.

**Rails and Track Supplies.**—Western roads have placed 35,000 tons of standard section rails for 1924 delivery with local mills. At the same time, a local frog and switch manufacturer has closed for 12,000 tons of rails. Notable among inquiries are 35,000 tons wanted by the Canadian National Railways and 10,000 tons inquired for by the Baltimore & Ohio. The Pennsylvania will soon enter the market and the Nickel Plate and Chesapeake & Ohio are said to contemplate placing orders.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled steel, 2.25c. f.o.b. makers' mills. Standard railroad spikes, 3.25c. mill; track bolts with square nuts, 4.25c. mill; iron tie plates, 2.85c. mill; steel tie plates, 2.60c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.90c. base and track bolts 4.90c. case.

**Reinforcing Bars.**—The contract for 6250 tons of concrete bars for the North Side Sewage Treatment Works of the Sanitary District, Chicago, has been placed with the Inland Steel Co. This is the largest letting reported in months. Deliveries will be made from month to month as work on the project progresses. Outside of this tonnage, few orders exceeding 100 tons are reported. Inquiries are more numerous, but they are largely for small tonnages for one and two-story building additions to be constructed before cold weather sets in. A considerable amount of highway work is still pending with the prospect that bar dealers will book a substantial tonnage for that purpose in coming weeks. The warehouse price for concrete bars remains unchanged at 3c., Chicago.

Lettings include:

North Side Sewage Treatment Works, Sanitary District, Chicago, 6250 tons to Inland Steel Co.  
Illinois State highway work, 135 tons to Concrete Steel Co.

Pending business includes:

E. K. Pond Packing Co., Chicago, packing plant, 175 tons.  
Hoffman Building, Chicago, 125 tons.  
Evanston, Ill., city filtration plant, 200 tons, general contract awarded to W. J. Newman, Chicago.  
Elks Club building, Milwaukee, Wis., 500 tons.

**Bolts and Nuts.**—Specifications are more liberal, particularly from the automobile makers, some of whom are now asking for fourth quarter contracts. Farm implement manufacturers, on the other hand, are buying little and in some instances are cancelling orders. Bolt and nut discounts are still weak, as is evidenced by the fact that some buyers are able to find sellers who will concede as much as 5 per cent off the generally accepted prices. The tendency, however, is in the direction of a steadier market, particularly because of the higher bar extras which bolt and nut makers must pay the mills. In fact, certain leading manufacturers are preparing new discounts to compensate for these added costs. A horizontal advance is not contemplated, but rather an adjustment which will take account of the new bar extras as they affect different products and at the same time will wipe out certain inconsistencies between various items which had not previously been corrected. The new prices will probably not be ready by Sept. 1, as was expected.

**Coke.**—A local melter has closed for 250 tons of foundry coke at \$5.75, Connellsville. Another sale at the same price involved 150 tons. Local by-product foundry remains unchanged at \$13.50, delivered Chicago switching district.

**Old Material.**—The market is notably stronger and prices of numerous items have advanced. Demand for foundry grades has improved and a fair tonnage of rolling mill grades has been ordered by consumers. Low phosphorous grades are scarce with prices strong. On the whole, however, the change in the market is largely a sentimental one. Encouraged, no doubt, by the upturn in scrap centers East of here, holders of material boosted their prices when approached by dealers to cover against sales of heavy melting to a local mill. Orders placed by this mill, which did not exceed 20,000 tons, were on the basis of \$16 delivered, as against \$16.50 up to \$17 now asked by scrap yards. Poor deliveries from the railroads have also tended to stiffen prices. One important line has placed an embargo on gondola cars except for coal traffic. In general, however, slow shipments from the carriers are probably due to their selling farther forward than usual in an attempt to keep a step ahead of declining prices. New railroad offerings include the Burlington, 7000 tons; the St. Paul and the Chicago & Alton, 1500 tons each; the Chesapeake & Ohio and the Monon, 500 tons each, and the Big Four, a blind list.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$21.50 to \$22.00
Cast iron car wheels	19.50 to 20.00
Relaying rails, 56 and 60 lb.	28.50 to 29.50
Relaying rails, 65 lb. and heavier	32.00 to 35.00
Rolled or forged steel car wheels	21.00 to 21.50
Rails for rolling	17.50 to 18.00
Steel rails, less than 3 ft.	20.00 to 20.50
Heavy melting steel	16.00 to 16.50
Frogs, switches and guards cut apart	16.50 to 17.00
Shoveling steel	15.75 to 16.25
Drop forge flashings	11.00 to 11.50
Hydraulic compressed sheets	12.50 to 13.00
Axle turnings	13.00 to 13.50
Steel angle bars	17.50 to 18.00
Per Net Ton	
Iron angle and splice bars	22.50 to 23.00
Iron arch bars and transoms	22.50 to 23.00
Iron car axles	25.50 to 26.00
Steel car axles	17.50 to 18.00
No. 1 busheling	12.00 to 13.50
No. 2 busheling	9.50 to 10.00
Cut forge	14.50 to 15.00
Pipes and flues	9.50 to 10.00
No. 1 railroad wrought	15.00 to 15.50
No. 2 railroad wrought	14.50 to 15.00
Steel knuckles and couplers	19.00 to 19.50
Coil springs	20.00 to 20.50
No. 1 machinery cast	18.50 to 19.50
No. 1 railroad cast	18.00 to 18.50
No. 1 agricultural cast	18.00 to 18.50
Low phos. punchings	17.00 to 17.50
Locomotive tires, smooth	15.50 to 16.00
Machine shop turnings	8.50 to 9.00
Cast borings	10.50 to 11.00
Short shoveling turnings	10.50 to 11.00
Stove plate	15.50 to 16.00
Grate bars	13.50 to 14.00
Brake shoes	14.00 to 14.50
Railroad malleable	18.50 to 19.00
Agricultural malleable	17.00 to 17.50



## New York

### Expectation of Strike of Miners Affects Coke and Pig Iron Markets

NEW YORK, Aug. 28.—The probability that the anthracite coal miners will go on strike Saturday, Sept. 1, is having a marked influence on the market, especially as to coke and pig iron. Prices on both of these products are firmer, but whether they are to be permanent is doubtful. At such a time of impending strike it is natural for sellers to take advantage of the situation. Owing to uncertainty as to delivery of coal and pig iron, some furnaces are slow to urge buyers to contract for the last quarter.

**Pig Iron.**—Although the market is very dull and some selling has been done at low prices, the present condition is one of greater strength, owing largely to the expectation that coke prices will be higher, causing increased cost of making pig iron. Interest has centered in the purchase by the Ingersoll-Rand Co. of 1500 tons of No. 2 at \$25.25 delivered. The tonnage was divided equally between two companies, the furnace price being about \$24.60. If the usual differential were allowed, this would make a low price for No. 2 plain, but little attention has been paid to differentials for some time, and it is doubtful whether less than \$24.50 could be done on No. 2 plain. While some Buffalo companies are still quoting \$25, \$24.50 is probably nearer the price on most of the limited number of transactions that have taken place. It is expected that Brooke furnace will go out this week and that several others will follow at an early date.

We quote delivered in the New York district as follows, having added to furnace prices \$2.27 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 1X fdy., sil. 2.75 to 3.25	\$27.27 to \$28.77
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	26.77 to 27.77
East. Pa. No. 2, sil. 1.75 to 2.25	26.77 to 27.77
Buffalo, sil. 1.75 to 2.25	28.91 to 29.41
No. 2X Virginia, sil. 2.25 to 2.75	32.94
No. 2 Virginia, sil. 1.75 to 2.25	32.44

**Ferroalloys.**—There is a little more inquiry for ferromanganese reported, consisting principally of carload lots for early delivery. It is believed that such resale alloy as was available at slightly under the prevailing price of \$117.50 has been disposed of. Imports continue very heavy, the July statistics just published showing the receipts to have been 11,314 tons, bringing the total for the first seven months of this year to 58,049 tons, or about 8300 tons per month. The spiegel-eisen market is without feature and without any change in prices, except possibly that such business as is going can be placed at \$45, furnace, for even small lots. There are no developments in the manganese ore market and the imports for July, according to data just published, were 23,824 tons, bringing the total for the seven months to 104,212 tons, or about 14,900 tons per month, the movement thus far this year having been exceedingly small. Sales of a few carloads of 50 per cent ferro-silicon are noted at \$82.50 to \$85, delivered. The ferro-chromium market is featureless.

**Cast-Iron Pipe.**—The market continues firm, with makers of pressure pipe booked well into the fall. One maker in this district is filled up on the large sizes of water pipe until Jan. 1, is in a position to deliver up to the end of November on the medium sizes and is booked well into October on the smaller sizes. On the recent opening by the Department of Water Supply, Gas and Electricity, City of New York, of two sets of bids, one for about 3000 tons of 20-in. and 30-in. pipe, the other for about 700 tons of 20-in. and 30-in. pipe, award was made to local contractors and the pipe has not yet been purchased. We quote per net ton, f.o.b. New York, in carload lots, as follows: 6-in. and larger, \$63.60; 4-in. and 5-in., \$68.60; 3-in., \$78.60, with \$5 additional for Class A and gas pipe. Makers of soil pipe report better demand and have increased prices by 5 points in the discounts, effective Aug. 24. Practically all the low-priced business is reported to have dis-

appeared from the market. Even at present prices makers are evidently not anxious to book very far in advance and are generally specifying shipment within 30 days or at sellers' convenience. Jobbers' stocks are not believed to be large and although the season of dullness in this market is approaching, makers are optimistic of the future. We quote discounts of both southern and northern makers, f.o.b. New York, in carload lots, for prompt shipment, as follows: 6-in. standard, 34½ to 35¾ per cent off list; heavy, 44½ to 45¾ per cent off list.

**Warehouse Business.**—A fairly active demand for material out of stock is generally reported, inquiries and small purchases of bars and plates, of which there is evidently a slight scarcity in this district, being particularly notable. Despite this reported scarcity, however, reports of shading on bars continue. In a few instances it is reported that as much as 10c. per 100 lb. has been conceded on bars. With these exceptions, which, it is claimed, are not numerous, the market is evidently strong and August is expected to compare favorably with July from the standpoint of business. Black and galvanized sheets still are a distinctly weak item in this district and as low as 4.50c. per lb., base, on black, and 5.50c. per lb., base, on galvanized, seems to be a fairly consistent quotation on the part of some sellers. It is said, however, that this base could not be obtained on some sizes, of which there is a slight scarcity. Discounts on wrought iron and steel pipe are unchanged and the market is quiet. We quote prices on page 590.

**Finished Iron and Steel.**—The larger mills, which always need large back logs, are showing definite interest in fourth quarter contracts and some are directing salesmen to cover for that delivery. The small mills show no concern, believing that demand will develop in sufficient volume to give them round tonnages with a possibility that with mill space for quick deliveries they may get higher than the current market levels, which are being made the basis of the last quarter's business. Nothing tangible has developed to show an increasing demand, but some fair-sized sales prove the firmness of current prices. The general impression is that stocks in the hands of manufacturing consumers are larger than they were some months ago but that they are still subnormal. The amount of fabricated steel work contracted for in the past week was notably large and with the considerable tonnage still pending there are signs of some stiffening in fabricating prices. A fair amount of business is being done in reinforcing bars, with the billet steel bars moving at the 2.40c., Pittsburgh, basis, but rail steel and other rerolled bars at 2.25c. to 2.35c.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.74c.; plates and structural shapes, 2.84c.; bar iron, 2.74c.

**Coke.**—The threatened coal strike has exercised a stiffening influence on the coke market and while \$4.75 per ton might still be done for prompt shipment of a few carloads, the market today is probably nearer \$5 to \$5.25 per ton on standard furnace coke. Standard foundry is quotable at \$6 to \$6.50 per ton. Operators are not inclined to consider extended deliveries on either furnace or foundry coke, in view of the uncertainty of future costs. By-product coke from New Jersey ovens is still quoted at \$11.41, Newark and Jersey City.

**Old Material.**—While the price offered by eastern Pennsylvania consumers for No. 1 heavy melting steel, both railroad and yard quality is unchanged, there is evident a strongly developed feeling among sellers, dealers and brokers that an upward movement of the market is in sight. Some small dealers are reported to be holding out for a price from brokers of better than \$16 per ton eastern Pennsylvania, and some brokers are said to have bought steel with a future upward turn of the market in view. On the other hand, the producers of scrap are not reported holding back at present prices. Some of the present strength of the local market is attributed to the strength of the market in western Pennsylvania, where No. 1 heavy melting

steel is reported at about \$18.50 per ton, delivered, but at present practically no tonnage is moving from this district for western Pennsylvania consumers. Stove plate is firm at about \$17.25, delivered eastern Pennsylvania, and about \$17 per ton to New Jersey consumers. Borings bring about \$14.50 per ton delivered eastern Pennsylvania. Borings and turnings are still going forward to Bethlehem and Sparrows Point. Turnings are being shipped to Phoenixville. The price of specification pipe has been increased by \$1 per ton delivered to Lebanon, for this delivery, \$16 per ton now being offered. On the whole the market is stronger, but the present strength seems to be largely confined in this district to the dealers and brokers, who are anticipating higher prices.

Buying prices per gross ton New York follow:

Heavy melting steel, yard.....	\$12.00 to \$12.50
Steel rails, short lengths, or equivalent .....	13.00 to 13.50
Rails for rolling .....	15.00 to 17.00
Relaying rails, nominal.....	25.00 to 26.00
Steel car axles .....	19.00 to 20.00
Iron car axles .....	25.00 to 26.00
No. 1 railroad wrought.....	14.00 to 14.50
Wrought iron track.....	13.50 to 14.00
Forge fire .....	9.50 to 10.00
No. 1 yard wrought, long.....	13.00 to 13.50
Cast borings (clean).....	10.00 to 10.50
Machine-shop turnings .....	9.75 to 10.25
Mixed borings and turnings.....	9.50 to 10.00
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	11.75 to 12.25
Stove plate .....	13.50 to 14.50
Locomotive grate bars.....	12.50 to 13.50
Malleable cast (railroad).....	18.00 to 19.00
Cast-iron car wheels.....	17.00 to 18.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast.....	\$20.00 to \$21.00
No. 1 heavy cast (columns, building materials, etc.), cupola size .....	19.00 to 20.00
No. 1 heavy cast, not cupola size .....	17.00 to 18.00
No. 2 cast (radiators, cast boilers, etc.) .....	17.00 to 18.00

## St. Louis

### Tennessee Maker Quotes Pig Iron at \$23.50, Birmingham

ST. LOUIS, Aug. 28.—The only sale of consequence of the last week was 1000 tons of basic by the St. Louis Coke & Iron Co. to a melter in the St. Louis district proper. Other sales were confined to carload orders, and were for immediate shipment. Although melters are taking more interest in the market, their purchases are still on a hand-to-mouth basis, buying only when they actually need the material. There are no inquiries of consequence before the market. Light buying is due to the combination of vacations among buyers and sellers, and a mixed sentiment among melters. Some believe the market has reached the bottom, while others believe there will be still lower prices. The market is firm. It is a problem what will happen when buying does begin on a large scale, which many makers of pig iron believe will be soon. One Tennessee maker is quoting \$23.50, Birmingham, for Southern iron.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.15 freight from Chicago, \$3.28 from Birmingham (rail and water), \$5.17 from Birmingham, all rail, and 81 cents average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25.....	\$29.16
Northern malleable, sil. 1.75 to 2.25.....	29.16
Basic .....	29.16
Southern Fdy., sil. 1.75 to 2.25.....	28.67 to 29.17

**Coke.**—The sale of 400 tons of coke to an industrial user here is reported. More interest is being shown in domestic grades. All of the by-product plants in the district are producing to capacity, and are accumulating stocks, as demand is still less than production. The price of Connellsville coke ranges from \$5.50 to \$7.

**Finished Iron and Steel.**—Delivery is the most important factor in the trade now. Buying is of small quantities, but purchasers want the material at once. Jobbers particularly are following a policy of buying only for immediate needs. Some inquiries are coming from the railroads, but only for carloads or less of frogs, switches and plates, shapes and bars. The order for 10,000 tons of 90-lb. rails for the Wabash Railway, which inquiry already has been reported, is expected to

be placed soon. An inquiry for 500 tons of reinforcing bars for a new unit of the Bonner Portland Cement Co., Bonner Springs, Kan., and one for 275 tons of reinforcing bars for the Delmar Avenue Viaduct, St. Louis, have been received.

For stock out of warehouse we quote: Soft steel bars, 3.35c. per lb.; iron bars, 3.35c.; structural shapes, 3.45c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 4.45c.; No. 28 black sheets, cold rolled, one pass, 5.20c.; cold drawn rounds, shafting and screw stock, 4.45c.; structural rivets, 4.15c.; boiler rivets, 4.25c.; tank rivets,  $\frac{1}{4}$  in. and smaller, 50-5 per cent off list; machine bolts, 45-5 per cent; carriage bolts, 40-5 per cent; lag screws, 50-5 per cent; hot pressed nuts, square or hexagon blank, \$2.50; and tapped, \$2.50 off list.

**Old Material.**—The market for old material seems to be stiffening. Dealers here continue to show their faith in the market by takings of heavy railroad offerings. Most business is in specialties, although rolling mill grades are showing some activity. No. 1 busheling is in good demand. Railroad lists include: Chicago, Milwaukee & St. Paul, 1200 tons; Chicago, Burlington & Quincy, 7000 tons; Standard Oil Co. (Indiana) at Woodriver, Ill., 250 tons; Terminal Railway of St. Louis, 1400 tons, and Big Four lines, blind list.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

#### Per Gross Ton

Iron rails .....	\$16.00 to \$16.50
Rails for rolling .....	17.50 to 18.00
Steel rails less than 3 ft. ....	18.50 to 19.00
Relaying rails, 60 lb. and under ..	26.00 to 27.00
Relaying rails, 70 lb. and over ..	33.50 to 34.50
Cast iron car wheels.....	18.50 to 19.00
Heavy melting steel.....	16.50 to 17.00
Heavy shoveling steel.....	16.50 to 17.00
Frogs, switches and guards cut apart .....	16.50 to 17.00

#### Per Net Ton

Heavy axles and tire turnings... ..	12.50 to 13.00
Steel angle bars.....	15.25 to 15.75
Iron car axles .....	25.00 to 26.00
Steel car axles .....	21.00 to 21.50
Wrought iron bars and transoms ..	20.00 to 21.00
No. 1 railroad wrought.....	15.00 to 15.50
No. 2 railroad wrought.....	16.50 to 17.00
Railroad springs .....	19.00 to 19.50
Cast iron borings .....	12.00 to 12.50
No. 1 busheling .....	16.75 to 17.25
No. 1 railroad cast .....	18.00 to 18.50
No. 1 machinery cast.....	19.00 to 19.50
Railroad malleable .....	17.00 to 17.50
Machine shop turnings .....	11.50 to 12.00
Champion bundled sheets .....	8.00 to 8.50

## Birmingham

### Furnaces Unable to Sell at \$27, but Still Hold to That Price—Scrap More Active

BIRMINGHAM, Aug. 28.—The majority of Birmingham foundry iron producers some time ago sold a substantial percentage of most grades of pig iron through October and November and seemingly prefer to tenaciously hold spot and forward quotations at \$27, base, rather than attempt to stimulate a substantial buying movement by shading the present base price. Within the past week, inquiries have been received soliciting prices on round lots ranging from 500 to 3000 tons, but no sales have resulted from the \$27 quotation. Sellers, however, have treated inquiries for the larger tonnages as trade feelers. The one Alabama interest which recently entered the market on a base price of \$24, Birmingham, has now withdrawn. One observer sizes up the situation as follows:

"The Birmingham pig iron market today is analogous to the Northern pig iron market of several months ago when the base price spread was several dollars in favor of Northern iron. At that time Birmingham iron was exceedingly active and penetrated into extreme Middle Northern territory points where it had not been sold for several years past. However, today conditions have changed and No. 2 foundry iron is quoted by Chicago furnaces at the same price which Birmingham furnaces are stubbornly holding their base price—\$27 f.o.b. furnaces. Even Virginia furnaces are quoting at \$26 f.o.b. furnaces for silicon 1.75 to 2.25 with heavy freight differentials in their favor over Birmingham. The Valley furnaces are quoting \$25 base



price. Therefore, in the face of these stern facts there is but one answer to Birmingham iron, and that is the faith of the producers in an assumed position that the bottom has been reached in Northern, Tennessee and Virginia prices; and that with the change to 8-hour shifts staring the iron and steel industry in the face, cost prices must correspondingly change upward, and there will shortly be a stiffening in prices when once the majority of substantial producers shall have placed a comfortable tonnage of low-priced orders on their books as 'back logs.' A similar situation has already occurred with one furnace interest in Alabama which was in the market for a short period at \$24 base price, then withdrew when the 'back log' was secured."

Southern iron being quoted at \$23 to \$23.50, f.o.b. Birmingham, refers to LaFollette, Tenn., iron. However, the LaFollette furnace enjoys a freight differential of \$1.65 to \$1.80 per ton over Birmingham iron. The demand for charcoal iron is in keeping with coke iron demands. One of the two stacks on charcoal iron in the State is out of commission.

We quote per gross ton f.o.b. Birmingham district furnaces as follows:

Foundry, silicon 1.75 to 2.25.....	\$23.50 to \$24.00
Basic .....	24.00
Charcoal, warm blast.....	\$33.00 to 34.00

**Cast Iron Pipe.**—With the price of Birmingham pig iron unchanged, there has been no chance of decline in either sanitary pipe or high pressure pipe. New business of even fair volume is lacking, and producers are primarily rocking along filling the scant orders which they have in hand. Prices are unchanged at \$49 for high pressure and \$50 to \$55 for soil pipe.

**Scrap.**—There has been a rather brisk demand for scrap, particularly No. 1 machine scrap, due largely to the high cost of pig iron. The general foundry trade is inclined to use larger percentages of scrap for miscellaneous castings.

We quote per gross ton f.o.b. Birmingham district yards, nominal prices, as follows:

Old steel rails.....	\$16.00 to \$18.00
No. 1 steel.....	14.00 to 16.00
No. 1 cast.....	20.00 to 21.00
Tram car wheels.....	20.00 to 21.00
Car wheels .....	19.00 to 20.00
Stove plate .....	15.00 to 16.00
Machine shop turnings.....	10.00 to 12.00
Cast iron borings.....	10.00 to 12.00

## Buffalo

### Foundries Show More Interest, But Sales Are Few and Prices Irregular

BUFFALO, Aug. 28.—Foundries are generally indicating more interest and producers are encouraged that with the close of the vacation period Sept. 1, some life may be expected. Current demand is slow and total sales in the district are less than 8000 tons. The total volume of inquiry measures up better than the preceding week, but there is a big gap between the tonnages and inquiries that find their way to the actual order stage. The \$25 base price is the uniform quotation for silicon 1.75 to 2.25, but there is no question that this price has been shaded. One broker has quoted \$25 uniformly on every inquiry and has not placed a ton of iron; the fact that most of these quotations are in eastern New York and New England indicates that Buffalo iron is still at a disadvantage in competition with eastern Pennsylvania furnaces at those points. Foundries generally show melting going on without decrease and most of the current inquiry is from small melters. The Gould Coupler Co., has bought 2000 tons of basic for shipment to Depew, N. Y., from a local furnace, but the consideration is not given. The same furnace has sold 1000 tons of basic to meet the additional requirements of a New York State car builder. The remainder of new business is small, the largest order not exceeding 200 tons. The 50c. differential is being maintained. An improvement in ship-

ping instructions on tonnages now on the books is a new encouraging note.

We quote f.o.b. per gross ton Buffalo as follows:

No. 1 foundry, 2.75 to 3.25 sil....	\$25.50 to \$26.00
No. 2X foundry, 2.25 to 2.75 sil..	25.00 to 25.50
No. 2 plain, 1.75 to 2.25 sil.....	24.50 to 25.00
Basic .....	26.00
Malleable .....	25.00
Lake Superior charcoal.....	32.28

**Finished Iron and Steel.**—Fourth quarter buyers are becoming more interested and prices remain firm on bars, shapes and plates. Any tendency to cut prices is offset through the advent of the 8-hr. day and producers say that fourth quarter prices will hold through the remainder of the year and that any change would be upward. Bar demand has been good at 2.40c., but plates are not sought for in the same proportion. The largest users of local plates in this territory are the local car builders and they are not interested and are understood to be well stocked for present needs. Pipe demand continues on the same high level; an inquiry for 2500 tons for shipment to South America, put out by a Canadian buyer is engaging local attention. No large bar tonnages are out, but the general run of small ones brings about a good average.

We quote warehouse prices, Buffalo, as follows:

Structural shapes, 3.65c.; plates, 3.65c.; soft steel bars, 3.55c.; hoops, 4.65c.; bands, 4.35c.; blue annealed sheets, No. 10 gage, 4.45c.; galvanized steel sheets, No. 28 gage, 6.35c.; black sheets, No. 28 gage, 5.25c.; cold rolled round shafting, 4.70c.
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**Coke.**—Threat of an anthracite strike has brought about a stiffening in prices and foundry grades now range from \$6 to \$7 per ton for spot shipment.

**Old Material.**—A few inquiries from outside the district for heavy melting steel makes the only break in the monotonous condition of this market. Buffalo dealers cannot compete on this business and are generally unconcerned with trying to place business except in the immediate area. One mill continues to offer \$17 for heavy melting steel, but is not able to buy because dealers are willing to pay more.

We quote f.o.b. gross ton Buffalo as follows:

Heavy melting steel .....	\$17.00 to \$18.00
Low phos., 0.04 and under.....	23.50 to 24.50
No. 1 railroad wrought.....	15.00 to 16.00
Car wheels .....	16.50 to 17.00
Machine shop turnings .....	8.50 to 9.50
Cast iron borings .....	15.00 to 16.00
No. 1 bushelings .....	15.50 to 16.00
Stove plate .....	17.00 to 17.50
Grate bars .....	17.00 to 17.50
Bundled sheet stampings .....	10.00 to 11.00
No. 1 machinery cast .....	19.50 to 20.50
Hydraulic compressed .....	15.00 to 16.00
Railroad malleable .....	20.00 to 21.00

### Canadian Scrap Market

TORONTO, ONT., Aug. 27.—Trading in iron and steel scrap continues dull in the Canadian market. Consumers are showing but little interest in their requirements and orders dealers are now receiving are for small tonnages for immediate delivery with no future buying reported. As a result of the limited demand for scrap on consumption account, dealers in their turn have become conservative buyers and are showing little interest in replenishing their yard holdings except when some special bargain is offered. Both Toronto and Montreal dealers are holding to old price lists, but it is stated that a softening tendency is beginning to feature the market.

Dealers' Buying Prices—Gross Tons

	Toronto	Montreal
Steel turnings .....	\$10.00	\$9.00
Machine shop turnings.....	10.00	9.00
Wrought scrap .....	8.00	8.00
Rails .....	14.00	14.50
No. 1 wrought scrap.....	14.00	15.00
Heavy melting steel.....	14.00	13.00
Steel axles .....	16.00	18.00
Axles, wrought iron.....	18.00	22.00
Net Tons		
Standard car wheels.....	15.00	17.00
Malleable scrap .....	15.00	16.00
Stove plate .....	15.00	16.00
No. 1 machinery cast.....	19.00	21.00

## Boston

### Not Enough Pig Iron Inquiry to Determine Status of the Market

BOSTON, Aug. 28.—During the past week, there was not enough inquiry for pig iron in this territory to determine the status of the market. There was but one sale of note, 1500 tons to the General Fire Extinguisher Co., Providence, R. I., the very limited number of others in no instance being of more than 50 tons. Of the 1500-ton order referred to, 600 tons was Northern No. 2X at just under \$30 delivered, the rest being No. 1X, reported to have been bought at about the same delivered price as the No. 2X. Thus it is still apparent furnaces are disregarding differentials on round tonnages, notwithstanding reports of firmer markets. Buyers say western Pennsylvania iron is offered at \$24 furnace base, but a small tonnage of No. 2X sold the past week at \$25.50. Textile machinery, stove and most of the machine tool foundries are operating on full schedule, but the average jobbing foundry is running on a hand-to-mouth basis with the daily melt about 60 per cent of capacity. Practically all foundries have sufficient iron on hand to carry them through September or longer. Consequently increased inquiry is not expected by the trade here much before another fortnight.

We quote, delivered prices on the basis of the latest reported sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama.

East. Penn., sil. 2.25 to 2.75.....	\$29.15 to \$30.15
East. Penn., sil. 1.75 to 2.25.....	28.65 to 29.65
Buffalo, sil. 2.25 to 2.75.....	29.91 to 30.41
Buffalo, sil. 1.75 to 2.25.....	29.01 to 30.41
Virginia, sil. 2.25 to 2.75.....	32.42 to 32.92
Virginia, sil. 1.75 to 2.25.....	31.92 to 32.42
Alabama, sil. 2.25 to 2.75.....	35.10 to 37.10
Alabama, sil. 1.75 to 2.25.....	34.60 to 36.60

**Finished Material.**—Bookings of wire mill products for third quarter delivery have been heavy in this territory the past week or ten days. Bars also are in good demand with some slight shading of 2.40c., base Pittsburgh, by independent mills reported. A wire manufacturer has just closed on 500 tons of billets at \$40, base Pittsburgh, and is about to close on an equal tonnage at the same figure. Street railroads have bought \$50,000 to \$60,000 of track work and one company is inquiring on 1500 tons and 800 tons of rails for fourth quarter delivery. Steam railroads show little interest in rails. Boiler shops are placing round tonnages of plates, mostly for stock purposes, at full market prices, and railroads are ordering considerable material for repair work. The market for structural steel is somewhat quieter with prices firm and unchanged.

Soft steel bars, \$3.61½ a 100 lb. base; flats, \$4.40; regular concrete bars, \$3.76½; deformed bars, stock lengths, \$3.76½ to \$3.89; structural steel, \$3.71½; tire steel, \$4.80 to \$5.15; open-hearth spring steel, \$8 to \$10; crucible spring steel, \$12; regular steel bands, \$4.80; bands over 6 in. wide, \$5.05 to \$5.30; hoops steel, \$5.80 to \$6.30; cold rolled steel, \$4.75 to \$5.25; refined iron, \$3.61½; best refined, \$4.75; Wayne iron, \$5.50; Norway iron, \$6.60 to \$7.10.

**Coke.**—The New England by-product coke producers are fairly deluged with domestic fuel business and prices in at least some instances have been raised \$1 a ton. In addition, the tendency among foundries in this territory is to increase rather than cut down specifications against contracts. With all this pressure, shipments of foundry coke have slowed down somewhat. One producer is about 60 cars behind on deliveries of such fuel. Slightly more interest is shown by foundries in Connellsville fuel, with some business put through the past week at \$7 on cars oven or \$12.55 delivered. Both the New England Coal & Coke Co. and the Providence Gas Co. continue to quote by-product foundry coke at \$13.50 delivered in New England.

**Old Material.**—The willingness of holders of certain kinds of old material to sell has made for slightly more activity in this market. A large percentage of the business put through recently has been applied to old contracts. While quotations in general are the same as a week ago, a marking up of railroad malleable, wrought pipe, machine shop turnings and mixed bor-

ings and turnings gives the market a slightly firmer appearance. Where advances have taken place, they average 50c. a ton. For mixed borings and turnings \$8.50 and \$9 on cars was paid the past week. Recent shipments of such material have been rejected, mills, in such cases, demanding price adjustments which have run as high as \$3 a ton. Although average prices offered for chemical borings are \$12 to \$12.50, sales are reported at \$12.60, and one lot of 150 tons fetched better than \$13, on cars. Car lots of heavy melting steel, generally at \$12.50 on cars, also are noted, and foundries have shown a little more interest in machinery cast. The Watertown Arsenal is asking bids on various lots of old material, some of it in the form of ingots.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast.....	\$22.50 to \$23.00
No. 2 machinery cast.....	20.50 to 21.00
Stove plate .....	16.00 to 17.00
Railroad malleable .....	21.00 to 21.50
Street car axles .....	20.00 to 21.00

The following prices are offered per gross ton lots f.o.b. Boston common rate shipping points:

No. 1 heavy melting steel.....	\$12.00 to \$12.50
No. 1 rail wrought.....	13.50 to 14.00
No. 1 yard wrought.....	12.50 to 13.00
Wrought pipe (1-in. in diam., over 2 ft. long).....	11.00 to 11.50
Machine shop turnings.....	8.50 to 9.00
Cast iron borings, rolling mill....	9.50 to 10.00
Cast iron borings, chemical.....	12.00 to 12.50
Blast furnace borings and turnings .....	8.50 to 9.00
Forged scrap and bundled skeleton .....	9.00 to 9.50
Shafting .....	18.00 to 18.50
Street car axles .....	18.00 to 18.50
Rails for rerolling .....	13.50 to 14.00

## Cincinnati

### Pig Iron Dull and Weak—Trading Between Dealers Enlivens Scrap Market

CINCINNATI, Aug. 28.—The market continues dull and weak, particularly on Northern irons, and one furnace is now openly quoting \$25, Iron-ton basis. Several others, while not quoting this figure, are understood to be willing to consider offers for attractive tonnages. On Southern irons there is no change in the situation, the demand continuing light, and prices unchanged from last week at \$23.50, Birmingham. Sales for the most part are confined to carload lots, though occasionally orders for 100 and 200 tons are booked. The principal transaction of the week was a sale of 1400 tons of silvery iron to a Michigan automobile maker at the full schedule. We also note a sale of 500 tons of Tennessee iron to a northern Ohio melter at \$23.50, Birmingham base. A sale of 500 tons of Northern was made on the basis of \$25, Iron-ton, and several smaller lots went at \$25.50. Inquiry is light, the largest being for 500 tons of high silicon Southern from a Louisville melter. An inquiry for 1000 tons of fluorspar is pending. The production of iron in southern Ohio and northern Kentucky district has been further curtailed by the blowing out of one Columbus and one Ashland stack of the American Rolling Mill Co., both of which had been running on basic.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Iron-ton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base)....	\$27.55
Southern coke, sil. 2.25 to 2.75 (No. 2 soft) .....	28.05
Ohio silvery, 8 per cent.....	36.77
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2) ..	27.27
Basic Northern .....	27.27
Malleable .....	27.27

**Structural Material.**—The only new project to come out was the Kresge Building, Cincinnati, requiring 350 tons on which bids were taken at Detroit. The L. & N. Railroad, which took bids on bridge work recently, awarded about 850 tons, but took no action on work involving 1000 tons. Bids closed this week on Kosair Temple, Louisville, Ky., involving 450 tons. The steel work on the building being erected for the McCall Publishing Co., at Dayton, Ohio, 500 tons has been awarded to the Dayton Structural Steel Co. and the Burger Iron Works Co.

**Sheets.**—A slightly improved demand for sheets is reported, but orders continue for carload lots and



quick delivery is usually asked for. For instance, a manufacturer in this district inquired for 1000 tons of tin mill black, and is understood to have placed the order with two independent mills for shipment within the next four weeks. Prices are at last quoted, the only deviation from the regular schedule being in black sheets, which are from \$2 to \$3 per ton below the published price. Blue annealed sheets are in fair demand, and prices are very firm.

**Warehouse Business.**—Jobbers report business fair, though the size of the orders has materially decreased. Prices are being maintained.

**Reinforcing Bars.**—Orders generally are for carload lots. No projects of any size have come up recently. Roadwork in adjoining States is responsible for a steady demand for bars. Prices are inclined to fluctuate. Rail steel bars are quoted at 2.30c., and reports are heard that 2.20c. can be done. Bars rolled from new billets generally are quoted at 2.40c., but some mills are reported to be getting 2.50c. on the smaller orders, while others are reported to be meeting the prices of the rerolled bar makers.

**Tool Steel.**—Orders are light, but at least more of them are reported this month than for the month of July. Prices are unchanged. On 18 per cent tungsten high speed steel, the price ranges from 75c. to 95c. per lb., according to brand.

**Finished Materials.**—Business is quiet, most of the orders placed being for one or two carloads for immediate shipment. Specialties, such as car wheels, boiler tubes, and molds, have been in fair demand recently, but large orders were not prominent. On bars, shapes and plates, one and two carload lots are being booked, but the larger buyers have not shown much interest in the market. Prices continue firm, however, and while some of the mills can make very quick deliveries, there are no indications of a resort to price shading to develop orders. With one or two exceptions, mills are in need of wire business, and very quick deliveries can be made now. Prices are being shaded on bolts and nuts, with orders light.

Cincinnati jobbers quote: Iron and steel bars, 3.50c.; reinforcing bars, 3.60c.; hoops, 4.55c.; bands, 4.25c.; shapes, 3.60c.; plates, 3.60c.; cold-rolled rounds, 4.50c.; cold-rolled flats, squares and hexagons, 5c.; No. 10 blue annealed sheets, 4.25c.; No. 28 black sheets, 5.35c.; No. 28 galvanized sheets, 6.35c.; No. 9 annealed wire, \$3.60 per 100 lb.; common wire nails, \$3.60 per keg base.

**Coke.**—The threatened coal strike has created a demand for domestic coke, and has firmed up prices considerably in the Connellsville district, where \$6 for foundry fuel is now reported as minimum, with nothing less than \$5 quoted on furnace grade. Prices from other districts are firm and unchanged from last week.

**Old Material.**—The scrap market is showing a little more activity, but most of this can be traced to trading between dealers. Consumers generally continue out of the market, but some sales have been made of both cast and steel grades at prices slightly higher than last week. Railroad lists closing are bringing higher prices, dealers taking materials to lay down on yards. The market generally is at least \$1 a ton higher, with borings being sought at \$2 a ton above last week's prices, largely on account of an inquiry for 2000 tons from Pittsburgh district. A Southern melter is inquiring for 4000 tons of mixed grades of cast.

We quote dealers' buying prices, f.o.b. cars Cincinnati:

*Per Gross Ton*

Bundled sheets .....	\$13.50 to \$14.00
Iron rails .....	16.00 to 16.50
Relaying rails, 50 lb. and up....	29.00 to 29.50
Rails for rolling.....	17.00 to 17.50
Heavy melting steel.....	15.50 to 16.00
Steel rails for melting.....	15.50 to 16.00
Car wheels .....	15.50 to 16.00

*Per Net Ton*

No. 1 railroad wrought.....	13.50 to 14.00
Cast borings .....	10.00 to 10.50
Steel turnings .....	9.50 to 10.00
Railroad cast .....	17.00 to 17.50
No. 1 machinery cast .....	19.50 to 20.00
Burnt scrap .....	12.50 to 13.00
Iron axles .....	22.50 to 23.00
Locomotive tires (smooth inside)	14.50 to 15.00
Pipes and flues .....	9.50 to 10.00

## Cleveland

### Weak Spots in Pig Iron Market—Finished Material Sales Gain in August

CLEVELAND, Aug. 27.—Ore shipments continue heavy and the movement up to and including Aug. 24 indicates that it will be approximately 10,000,000 tons for the month as compared with 10,411,248 tons in July. The consumption of Lake Superior ore fell off 68,783 tons during July, being 5,747,356 tons as compared with 5,816,139 tons in June, and with the peak consumption of 6,118,540 tons during May. During July, 1922, the consumption was 3,582,715 tons. Consumption by lake front furnaces include Canadian furnaces during the month was 2,223,294 tons, or an increase over June, the falling off being in other districts. Interior furnaces in the central district consumed 3,071,322 tons, Eastern furnaces 304,208 tons, and all rail furnaces 148,532 tons. On Aug. 1 there was 27,503,482 tons of ore on hand at furnaces and Lake Erie docks as compared with 22,800,252 tons on July 1, and with 31,127,303 tons on Aug. 1, 1922. Stocks at furnaces Aug. 1 were 22,546,777 tons as compared with 18,288,462 tons on July 1.

**Pig Iron.**—Orders for foundry and malleable iron continue to come out in fair volume in medium-sized lots either for early shipment or for delivery through the remainder of the year. There seems to be more of a disposition among consumers to cover for more extended deliveries than for some months as is shown by a number of purchases for the fourth quarter. Locally the market has declined 50c. to \$25.50 for foundry and malleable iron for local delivery and to \$25 at furnace for outside shipments. Outside of Cleveland weak spots continue to appear in the market and some business in foundry and malleable grades was taken during the week at \$24.50. Shading below \$25 is not general, however, as is indicated by the purchase of 300 tons of foundry iron at that price by a consumer in Newark, Ohio, a highly competitive point, because its freight rate is the same from four Ohio producing centers. Basic iron is firm at \$25. Three sales in 1000-ton lots are reported at that price, two lots going to a Sharon, Pa., consumer from nearby furnaces, and one lot to an Alliance, Ohio, melter. One Cleveland interest during the week sold 8000 tons of foundry and malleable iron, including two 1000-ton lots and one 1500-ton lot. Another local selling agency booked orders for 10,000 tons, including 2000 tons of malleable iron for Eastern shipment. The Westinghouse Electric & Mfg. Co. purchased 250 tons of foundry iron for its Cleveland plant and 1500 tons for Trafford City. A northwestern Ohio melter purchased 500 tons of foundry iron for prompt shipment. Low phosphorous iron is weak. One Eastern furnace is quoting copper free iron at \$28.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 rate from Birmingham:

Basic, Valley furnace.....	\$25.00
Northern No. 2 fdy., sil. 1.75 to 2.25 .....	26.00
Southern fdy., sil. 1.75 to 2.25....	29.50
Malleable .....	26.00
Ohio silvery, 8 per cent.....	37.52
Standard low phos., Valley furnace .....	\$31.00 to 32.00

**Alloy Steels.**—Demand, which has been light for some time, shows considerable improvement. Some of the automobile companies are buying for early requirements and a few have placed contracts for the fourth quarter. With good deliveries by mills, car builders are keeping their stocks low. Prices are firm.

**Bolts and Nuts.**—Following the weakness noted last week, bolt and nut makers have reduced prices 5 per cent on machine, carriage, lag and tire bolts, and contracts are being revised to the new prices. No reductions were made on any kind of nuts or on stove bolts. There seems to be no connection between the price reductions and the new price lists that are to be issued this week to become effective Sept. 1. These lists have been revised not only because of the increased extras on

steel bars but to eliminate certain inequalities in prices that have existed because of changes in production methods and costs, price lists not having been revised for several years.

**Sheets.**—There is some demand from the automobile industry for blue annealed and full finished sheets, but car builders as well as other consumers are buying carefully and placing small orders. Some consumers have enough sheets under contract to carry them well into the fourth quarter. Galvanized sheet prices have been shaded slightly on desirable orders, and on black sheets 3.75c. can still be done, although this price is not openly quoted.

**Reinforcing Bars.**—There is a good volume of new inquiry for small lots. Bids have been taken for the Rogers Building, Cleveland, requiring 150 tons. Rail steel bars have settled down to 2.30c., and this price is being shaded for desirable orders.

**Warehouse Business.**—Weakness has developed in warehouse prices on sheet, and quotations of 5.50c. on galvanized and 4.40c. on black are reported, or a concession of \$6 a ton on the former and \$5 a ton on the latter. Other prices are being maintained.

**Rivets.**—The new extras on rivets, announced last week will be generally adopted by manufacturers Sept. 1. Some objection to these extras is being made by consumers, particularly to the extras for length. Prices are unchanged.

**Semi-Finished Steel.**—A local producer during the week took 1000 sheet bars at \$42.50, this being the first order booked in this market for several weeks. Some additional reservations have been made for the fourth quarter, mostly for sheet bars.

**Finished Material.**—New business booked in this territory during August will show some gain over July, which was a better month than June. The demand continues fair, but is almost wholly in small lots for early requirements. Much of the business is in orders for material to be entered to replace steel shipped on previous orders. Generally the demand for plates and structural material is better than for bars. Little new inquiry is coming out in the building field. The cost of building boats is holding back business in the lake shipbuilding industry. During the week an inquiry came out for 10,000 tons of steel for two boats, but this was withdrawn three days later when the vessel interest decided not to purchase the boats. Mills are getting a good volume of orders for forging bars from drop forge shops making automobile forgings, and generally the outlook in the automotive industry is regarded as very promising. Small lot plate orders for early shipment are still being taken by Eastern mills at 2.50c. at mill, equivalent to about 2.65c., Pittsburgh, and local mills continued to take some plate business on the 2.60c. basis. Hot-rolled strip steel in wide material is weak owing to the competition with blue annealed sheets and light plates. Some mills are quoting this at 3c. and in some cases extras are being waived.

Jobbers quote steel bars, 3.36c.; plates and structural shapes, 3.46c.; No. 9 galvanized wire, 3.70c.; No. 9 annealed wire, 3.25c.; No. 28 black sheets, 4.40c. to 4.65c.; No. 28 galvanized sheets, 5.50c. to 5.80c.; No. 10 blue annealed sheets, 3.75c. to 4.06c.; cold rolled rounds, 3.90c.; flats, squares and hexagons, 4.40c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 4.16c.; narrower than 1 in. or lighter than No. 20 gage, 4.60c.

**Coke.**—Prices on foundry coke have stiffened because of a possibility of an anthracite coal strike and standard Connellsville foundry coke is now quoted at \$6 to \$7.50 for prompt shipment. Several producers are declining to make quotations for contracts.

**Old Material.**—The upward price trend has continued with an advance in quotations of from 50c. to \$2 a ton during the week. The advances appear to be due more to the release of old orders and to speculative buying by dealers rather than to any marked increase in orders from consumers. Machine shop turnings and mixed borings and turnings are particularly strong, having advanced over \$1 a ton, and consumers are now taking these grades in liberal quantities. Dealers are paying \$12 to \$12.50 for turnings to lay down as compared with \$9 to \$9.50, at which some sales were made early in the summer. Heavy melting steel has advanced

to \$18.50 in the Valley district. The price advances are not bringing out a great deal of scrap, as producers and dealers are holding material for further advances.

We quote dealers prices f.o.b. Cleveland, per gross ton:

Heavy melting steel.....	\$16.50 to \$17.00
Rails for rolling.....	20.00 to 20.50
Rails under 3-ft.....	19.00 to 19.50
Low phosphorus melting.....	20.00 to 21.00
Cast borings.....	13.25 to 13.50
Machine shop turnings.....	12.25 to 12.50
Mixed borings and short turnings.....	13.00 to 13.25
Compressed sheet steel.....	14.50 to 15.00
Railroad wrought.....	15.00 to 15.50
Railroad malleable.....	21.50 to 22.00
Light bundle sheet stampings.....	11.50 to 12.00
Steel axle turnings.....	15.50 to 16.50
No. 1 cast.....	21.00 to 21.50
No. 1 busheling.....	12.00 to 12.25
Drop forge flashings.....	12.00 to 13.00
Railroad grate bars.....	15.50 to 16.00
Stove plate.....	15.50 to 16.00
Pipes and flues.....	12.00 to 12.25

## San Francisco

### Summer Dullness Prolonged—Small Lots of Chinese Iron Expected

SAN FRANCISCO, Aug. 22.—While there is a tendency in some quarters to indulge in expressions of optimistic opinion as regards business conditions, there is no denying the fact that a gradual slowing down process is in its initial stage; in fact, has already assumed definite form in many branches of trade. In iron and steel, business is quiet and the outlook seems to be devoid of features which might be considered as favorable for an early resumption of activity. While there has been no material shortening of operations, the fact is noticeable that deliveries are being made more promptly and orders for account of new business are considerably less in volume than a few weeks ago. There is practically nothing in fourth quarter developments, but prices maintain a better equilibrium than might be expected under existing conditions. Neither importers nor traders have any explanations to offer for the growing quietness other than the generally admitted fact that the usual decreased activity incident to the summer season is being prolonged beyond the customary limits of the last two years.

**Pig Iron.**—The demand is of very moderate proportions and most of the current trading is confined to small lots. Sellers say the consumers are still fairly well supplied and with a shortage of orders for finished material there is no reason for stocking up for the present. Prices are described as easy, but are sustained for the moment. Desirable lots are quoted at from \$35 to \$37, duty paid basis, on landed or out-turn weights. There is an undercurrent of sentiment that prices will be lower before they are higher, but thus far sellers say they are not shading asking figures to induce trade. On the other hand, consumers say that they have no reason to seek concessions in price because they do not need the material. Most consumers are well supplied and do not feel disposed to make additional purchases. It is stated that several small parcels of Chinese iron, chiefly in 100-ton lots, are expected within the next few weeks.

**Coke.**—There is practically nothing being done in this line and in the absence of demand, importers have no quotations to announce. The bulk of receipts is for railroad account and use, and cuts no figure in the trade conditions. The railroads usually bring in for their own use from 500 to 800 tons per month.

**Old Material.**—The decrease in demand shows a decided growth during the past month and particularly for the last two weeks. The price for delivery at the mill remains fairly steady at \$15 to \$15.50 per gross ton, although the report is current that the minimum figure has been shaded during the last day or two. However this may be, it would have to be an exceptionally desirable lot to bring the maximum price. The chief products here are shapes, plates and reinforcing steel and for all these the demand has fallen off. So with the lack of new business there is necessarily decreased buying of old material. Dealers say that while they have hopes for an early betterment there is little of an encouraging nature in sight at the moment.



## Philadelphia

### Coke Prices Advance—Some Soft Spots in Pig Iron Market Disappear

PHILADELPHIA, Aug. 28.—This pre-holiday week has brought no indications of a gain in business in the early fall. There has been a stiffening in coke prices, due to the threat of an anthracite coal strike, and a consequent elimination of some of the soft spots in pig iron. On a very small volume of business the scrap market has moved to higher price levels on the more important grades. The steel market is exceedingly quiet, though the volume of business booked in August is generally reported as better than that of July, but a considerably heavier volume will be necessary to maintain the present mill production rate throughout the remainder of the year. The steel trade is confident that much improvement will come next month. With the holiday next week and the fact that this is the fog end of the vacation period, little has been expected this week, so the trade has not been disappointed.

**Pig Iron.**—The effect of merchant iron producers is to establish foundry pig iron at a minimum of \$25, furnace, for No. 2 plain, and it seems this week to have more nearly reached that level, though some Eastern transactions have netted the furnaces less than \$25. One Eastern furnace has raised its minimum to \$25.50, and names \$26 for No. 2X and \$26.50 for No. 1X, but few sales are being made at these prices. The same furnace is offering no iron for fourth quarter, believing that prices for that period will be slightly higher, particularly if there is an anthracite coal strike. Practically none of the Eastern furnaces has covered for fourth quarter coke. Spot coke prices have jumped 25c. or 50c. per ton several times within the past week since the coal strike threat became ominous, and the minimum today was said to be \$5, Connellsville, for spot furnace coke, with some brokers naming as high as \$5.75. Foundry coke was quoted from \$6 to \$6.50. Unless there is a coal strike, the future of the pig iron market for this year looks none too encouraging. At least three Eastern furnace companies have upward of 35,000 tons each of iron piled in their yards, with no immediate prospect of moving it. It is recognized that the only salvation for the market, aside from a coal strike, is the blowing out of several furnaces, but there is no indication of a general move in that direction. The Robeson furnace is preparing to come in blast late in September on foundry and copper-bearing low-phosphorus iron. The low-phosphorus iron market is weak. One maker of copper-bearing grade has named \$28, furnace, a reduction of \$2 a ton, while copper-free iron is probably to be had at \$29 or \$30, furnace. Foreign low-phosphorus iron has been sold to a Philadelphia consumer at slightly over \$30 a ton, delivered. A shipment of 1014 tons of pig iron from British India was received here last week.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76 cents to \$1.64 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$25.76 to \$26.14
East. Pa. No. 2X, 2.25 to 2.75 sil.	26.26 to 27.14
East. Pa. No. 1X, .....	26.76 to 27.14
Virginia No. 2 plain, 1.75 to 2.25 sil.	30.67 to 31.17
Virginia No. 2X, 2.25 to 2.75 sil.	31.17 to 31.67
Basic delivered eastern Pa. ....	25.00
Gray forge .....	25.50 to 26.00
Malleable .....	26.26 to 26.84
Standard low phos. (f.o.b. furnace) .....	29.00 to 30.00
Copper bearing low phos. (f.o.b. furnace) .....	28.00

#### Foreign Pig Iron

All prices f.o.b. cars Philadelphia, duty paid.	
Continental foundry, 1.80 to 2.50 sil.	\$25.50
Continental foundry, 2.50 to 3.25 sil.	26.50
Low phos., copper free, guar. not over 0.035 per cent phos.	31.50
Continental, phos. 1.50; sil. 2 to 3.	25.50

**Ferroalloys.**—There is very little demand for ferro-manganese or spiegeleisen and prices remain nominal at \$117.50, seaboard or domestic furnace, for the former, and at \$45, furnace, for the latter.

**Semi-Finished Steel.**—While \$42.50, Pittsburgh, has been shaded on open-hearth rerolling billets, the market now seems a little firmer at that figure. Forging billets are quoted from \$47.50 to \$50, Pittsburgh.

**Plates.**—The plate market continues weak as to demand, but firm as to prices. August business has been a little better than July, but there is room for much improvement. Deliveries may be had in a week or less. There is no reported shading of the 2.50c. prices.

**Structural Material.**—The Bethlehem Steel Co. has been awarded 400 tons for the Freeman Building, 1810 Chestnut Street, Philadelphia, and 600 tons for an addition to the Penn-Harris Hotel, Harrisburg. Except for the 2.40c. quotations of one Eastern mill, the market seems fairly well established at 2.50c., Pittsburgh. Demand is light.

**Bars.**—Makers of bar iron and iron bands have announced a new schedule of extras, effective Sept. 1, which is in line with the new extras on steel bars announced several weeks ago.

**Warehouse Business.**—The demand for steel out of stock continues at about the same rate as in recent weeks. Prices are unchanged and for local delivery are as follows:

Soft steel bars and small shapes, 3.55c.; iron bars (except bands), 3.55c.; round edge iron, 3.75c.; round edge steel, iron finished, 1½ x ½ in., 3.75c.; round edge steel planished, 4.55c.; tank steel plates, ¼ in. and heavier, 3.65c.; tank steel plates, ½ in., 3.95c.; blue annealed steel sheets, No. 10 gage, 4.25c.; black sheets, No. 28 gage, 5.15c.; galvanized sheets, No. 2 gage, 6.25c.; square twisted and deformed steel bars, 3.65c.; structural shapes, 3.65c.; diamond pattern plates, ¼-in., 5.40c.; ½-in., 5.60c.; spring steel, 5c.; round cold-rolled steel, 4.35c.; square and hexagons, cold-rolled steel, 4.85c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 4.75c.; narrower than 1 in., all gages, 5.25c.; steel bands, No. 12 gage to ½-in., inclusive, 4.35c.; rails, 3.55c.; tool steel, 8.50c.; Norway iron, 7c.

**Ore.**—Receipts of iron ore from abroad last week were as follows: Sweden, 7038 tons; French Africa, 8100 tons; Germany, 880 tons; Cuba, 7500 tons. Manganese ore from British West Africa received here amounted to 5657 tons.

**Old Material.**—While the scrap market is not active it has shown some price strength during the past few days. Prices had gone so low that it is now almost impossible for consumers to buy at the low levels which had been reached, and on actual transactions prices on a number of grades have advanced 50c. to \$1 a ton. Nearly all of the Eastern consumers of heavy steel scrap are now offering \$16.50 for small lots and dealers are asking \$17. No. 1 cast scrap has been sold to a large local consumer in the past week at \$21.50.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel.....	\$16.50 to \$17.00
Scrap rails .....	16.50 to 17.00
Steel rails for rolling.....	17.00 to 18.00
No. 1 low phos., heavy 6.04 and under .....	22.00 to 23.00
Cast-iron car wheels.....	21.00 to 22.00
No. 1 railroad wrought.....	18.00 to 19.00
No. 1 yard wrought.....	18.00 to 18.50
No. 1 forge fire.....	14.00 to 14.50
Bundled sheets (for steel works) .....	14.00 to 14.50
No. 1 bushelling .....	15.50 to 16.00
Mixed borings and turnings (for blast furnace use) .....	12.50 to 13.50
Machine shop turnings (for steel works use) .....	15.00 to 15.50
Machine shop turnings (for rolling mill use) .....	14.50 to 15.00
Heavy axle turnings (or equivalent) .....	15.00 to 15.50
Cast borings (for steel works and rolling mills) .....	15.00 to 15.50
Cast borings (for chemical plants) .....	19.00 to 20.00
No. 1 cast.....	21.50 to 22.00
Heavy breakable cast (for steel plants) .....	19.00 to 19.50
Railroad grate bars .....	17.00 to 18.00
Stove plate (for steel plant use) .....	17.00 to 17.50
Railroad malleable .....	19.00 to 20.00
Wrought iron and soft steel pipes and tubes (new specifications) .....	16.00 to 17.00
Shafting .....	22.00 to 24.00
Steel axles .....	24.00 to 26.00

## British Iron and Steel Market

### Pig Iron Slightly Stiffer—Semi-Finished Steel Weak—Belgium Is Relighting Blast Furnaces—Tin Plate Stronger

(By Cable)

LONDON, ENGLAND, Aug. 28.

There is improved export demand for No. 3 foundry pig iron and slightly stiffened quotations but other grades are unchanged.

Hematite is firmer, though inquiry generally is still poor. Foreign ore is dull, shipments of Bilbao Rubio being held up by strikes, and price quotations nominal.

There is moderate demand for finished iron and steel but makers are anxious for orders for heavy materials. Germany is inquiring for 2000 tons of ship plates and sections. China is buying plate cuttings. South Africa and Australia have purchased plates, angles and sections.

Continental position is practically unaltered. There is fair demand from India and the Far East, but orders are not passing through traders here.

In Belgium, the Société Anonyme d'Athus-Grivegne at Athus and the Société Anonyme des Acieries d'Angleur at Tilleur are relighting their fourth furnaces.

In France the Ruhr arrivals of coke are unsatisfactory.

In Luxemburg, blowing out of furnaces is feared imminent, owing to the fall in the exchange value of the Belgian franc. At present 26 out of 47 blast furnaces are blowing. The Acieries Reunies de Burbach-Eich-Dudelange has ten furnaces operating out of fifteen; Belval has four out of six; the Société des Hauts-Fourneaux et Acieries de Differdange, six out of ten.

There is slightly increased activity in tin plate, especially in 28 x 20's of light weight, which are in short supply. The recent oil orders now total about 700,000 boxes.

Japan is still buying black sheets at £19 10s. (3.95c. per lb.) f.o.b. Works are heavily sold. The Central Selling Agency for thin black sheets for the Far East will operate from Sept. 1.

Baldwin's, Ltd., has bought the Wern Tinplate Co., Ltd., Briton Ferry, Glamorgan County, Wales. [The

plant in 1922 consisted of four mills with a capacity of 3000 boxes per week. The capital was given as £24,290.]

We quote per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.54 per £1, as follows:

Durham coke, delivered	£2 1s.	to £2 1½s.	\$9.31 to \$9.42
Bilbao Rubio ore†	1 4		5.45
Cleveland No. 1 foundry	5 7½		24.40
Cleveland No. 3 foundry	5 2		23.15
Cleveland No. 4 foundry	4 16½		21.91
Cleveland No. 4 forge	4 15		21.57
Cleveland basic	5 2½		23.27
East Coast mixed	4 18½	to 5 0	22.36 to 22.70
Ferromanganese	18 0		81.72
Ferromanganese*	18 10		83.99
Rails, 60 lb. and up	8 10	to 9 10	38.59 to 43.13
Billets	7 15	to 8 10	35.19 to 38.59
Sheet and tin plate bars, Welsh	9 2½		41.43
Tin plates, base box	1 3½	to 1 3¼	5.25 to 5.28
			C. per Lb.
Ship plates	9 5	to 9 15	1.87 to 1.98
Boiler plates	12 10	to 13 0	2.53 to 2.63
Tees	10 0	to 10 10	2.03 to 2.13
Channels	9 5	to 9 15	1.87 to 1.98
Beams	9 0	to 9 10	1.82 to 1.93
Round bars, ¾ to 3 in.	10 15	to 11 5	2.18 to 2.28
Galvanized sheets, 24 g.	18 10	to 18 15	3.75 to 3.80
Black sheets, 24 gage	13 15		2.79
Black sheets, Japanese specifications	15 5		3.09
Steel hoops	12 0	& 12 10*	2.43 & 2.53*
Cold rolled steel strip, 20 gage	17 5		3.50
Cotton ties, Indian specifications	15 0		3.04

\*Export price. †Ex-ship, Tees, nominal.

### Continental Prices, All F. O. B. Channel Ports, Delivery as Specified

Foundry pig iron:			
Belgium	£5 5s.		\$23.84
France	5 5		23.84
Luxemburg	5 5		23.84
Billets:			
Belgium	8 0	to £8 2½s.	36.32 to 36.89
France	7 5		32.92
Merchant bars:			C. per Lb.
Belgium	8 0	to 8 5	1.62 to 1.67
Luxemburg	7 17½	to 8 5	1.60 to 1.67
France	7 10		1.52
Joists (beams):			
Belgium	7 12½		1.55
Luxemburg	7 12½		1.55
France	7 10	to 7 12½	1.52 to 1.55
Angles:			
Belgium	8 0	to 8 5	1.62 to 1.67
¼-in. plates:			
Belgium	8 15	to 9 0	1.77 to 1.82
Germany	8 10		1.72
¾-in. plates:			
Luxemburg	7 15		1.57
Belgium	7 10		1.52

## ASSIGNED CAR CASE

### Attorneys Consult in Regard to Beginning Legal Proceedings

WASHINGTON, Aug. 28.—No indication has been given by the Interstate Commerce Commission that it intends to postpone its order in the assigned car case, and this has developed consultation among attorneys for the owners of private cars and railroads with a view of bringing legal action to defend what they call their constitutional rights. Iron and steel manufacturers have taken a leading part in vigorously protesting against the decision of the commission in this case and have filed petitions urgently asking for its reopening and a rehearing. Whether or not they contemplate court action is not known here. Unless the commission takes action in the meantime, its order will become effective on Oct. 1.

Attorneys for railroads and some of the industries owning private coal cars have indicated that they would seek redress through injunction at the hands of the courts. At least it is most probable that this would be the course pursued by the railroads. With the private car owners, the matter is not so well defined. The latter were not parties to the investigation by the commission and the order does not run against them. At the same time, however, they have stated in their peti-

tions for rehearings and intervention that the result of the order would be to deprive them of the beneficial use of their property, despite the fact that the statute recognizes their right to own private cars and offer them for transportation over the rails of common carriers. Because of this right, the steel and other private owners of cars have pointed out in their petitions that they have made large investments in cars. Owners of private cars also take the stand of the railroads that by reason of the fact that the law recognizes their right to own mines, the right to use cars for hauling coal is as much a part of their property as the mine itself, and that anything depriving them of the right to use the cars in times of shortage is a taking of property without due process. Contention also is made that there is no competition between the railroad and industrially owned mines on the one hand and commercial mines on the other, because the coal from the mines of the railroads and industries is consumed by their owners and is not put on the market.

It is the view of railroads and industries owning cars that the order of the commission, applicable only in times of shortage, will deprive them of the use of their mines at the time they are most necessary. It is maintained that during periods of shortage the rule will have the effect of requiring the railroads and the private owners to forego the usual practice of getting their coal by compelling them to release some of their cars for loading at commercial mines.



# Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

## Plates

Sheared, tank quality, base, per lb. 2.50c.

## Structural Material

Beams, channels, etc., base, per lb. 2.50c.  
Sheet piling 2.65c.

## Iron and Steel Bars

Soft steel bars, base, per lb. 2.40c.  
Soft steel bars for cold finishing \$3 per ton over base  
Reinforcing steel bars, base 2.40c.  
Refined iron bars, base, per lb. 3.25c.  
Double refined iron bars, base, per lb. 4.85c. to 5.00c.  
Stay bolt iron bars, base, per lb. 8.00c. to 8.50c.

## Hot-Rolled Flats

Hoops, ordinary gages and widths, base, per lb. 3.15c.  
Bands, base, per lb. 3.15c.  
Strips, base, per lb. 3.00c. to 3.15c.  
Cotton ties, per bundle of 45 lb. \$1.62

## Cold-Finished Steels

Bars and shafting, base, per lb. 3.25c.  
Bars, S. A. E. Series, No. 2100 4.50c. to 4.75c.  
Bars, S. A. E. Series, No. 2300 6.50c. to 6.75c.  
Bars, S. A. E. Series, No. 3100 5.50c. to 5.75c.  
Strips, base, per lb. 5.00c.

## Wire Products

Nails, base, per keg \$3.00  
Galvanized nails, 1 in. and over \$2.25 over base  
Galvanized nails, less than 1 in. 2.50 over base  
Bright plain wire, base, No. 9 gage, per 100 lb. 2.75  
Annealed fence wire, base, per 100 lb. 2.90  
Spring wire, base, per 100 lb. 3.70  
Galvanized wire, No. 9, base, per 100 lb. 3.35  
Galvanized barbed, base, per 100 lb. 3.80  
Galvanized staples, base, per keg 3.80  
Painted barbed wire, base, per 100 lb. 3.45  
Polished staples, base, per keg 3.45  
Cement coated nails, base, per count keg 2.70  
Woven fence, carloads (to jobbers) 67½ per cent off list  
Woven fence, carloads (to retailers) 65 per cent off list

## Bolts and Nuts

Machine bolts, small, rolled threads, 60, 10 and 5 per cent off list  
Machine bolts, small, cut threads 60 and 5 per cent off list  
Machine bolts, larger and longer 60 and 5 per cent off list  
Carriage bolts, ¾ x 6 in.:  
Smaller and shorter, rolled threads 60 and 5 per cent off list  
Cut threads 50, 10 and 5 per cent off list  
Larger and longer 50, 10 and 5 per cent off list  
Lag bolts 65 and 5 per cent off list  
Plow bolts, Nos. 1, 2 and 3 heads 50 and 10 per cent off list  
Other style heads 20 per cent extra  
Machine bolts, c.p.c. and t. nuts, ¾ x 4 in. 45, 10 and 5 per cent off list

Larger and longer sizes 45, 10 and 5 per cent off list  
Hot pressed square or hex. nuts, blank 3.50c. off list  
Hot pressed nuts, tapped 3.25c. off list  
C.p.c. and t. square or hex. nuts, blank 3.75c. off list  
C.p.c. and t. square or hex. nuts, tapped 3.75c. off list  
Semi-finished hex. nuts:

¾ in. and smaller, U. S. S. 80 per cent off list  
¾ in. and larger, U. S. S. 75 per cent off list  
Small sizes, S. A. E. 80 and 5 per cent off list  
S. A. E., ¾ in. and larger 75 and 5 per cent off list  
Stove bolts in packages 75, 10 and 5 per cent off list  
Stove bolts in bulk 75, 10, 5 and 2½ per cent off list  
Tire bolts 60 and 10 per cent off list  
Bolt ends with hot pressed nuts 60 and 5 per cent off list  
Turnbuckles, with ends, ½ in. and smaller, 55 and 5 to 50 per cent off list

Turnbuckles, without ends, ½ in. and smaller, 70 and 10 to 65 and 5 per cent off list  
Washers 5c. to 5.25c. off list

## Cap and Set Screws

Milled square and hex. head cap screws 65 and 10 per cent off list  
Milled set screws 65 and 10 per cent off list  
Upset cap screws 75 per cent off list  
Upset set screws 75 per cent off list  
Milled studs 50 per cent off list

## Rivets

Large structural and ship rivets, base, per 100 lb. \$3.00 to \$3.10  
Large boiler rivets, base 100 lb. 3.10 to 3.20  
Small rivets 65 and 10 to 65 and 5 off list

## Track Equipment

Spikes, ½ in. and larger, base, per 100 lb. \$3.15  
Spikes, ½ in., ⅞ in. and ¾ in., per 100 lb. 3.50  
Spikes, ⅞ in. 3.50  
Spikes, boat and barge, base, per 100 lb. 3.50  
Track bolts, ¾ in. and larger, base, per 100 lb. 4.00 to 4.25  
Track bolts, ½ in. and ¾ in., base, per 100 lb. 5.00 to 5.50  
Tie plates, per 100 lb. 2.55 to 2.60  
Angle bars, base, per 100 lb. 2.75

## Welded Pipe

Butt Weld

Inches	Steel	Galv.	Inches	Iron	Galv.
1 ½	45	19 ½	¾ to 1 ½	22	11
1 ¾	51	25 ½	1 ½ to 2 ½	28	13
2	56	42 ½			
2 ½	60	48 ½			
3	62	50 ½			

Lap Weld

2	55	43 ½	2	23	7
2 ½ to 6	59	47 ½	2 ½	26	11
7 and 8	56	43 ½	3 to 6	28	13
9 and 10	54	41 ½	7 to 12	26	11
11 and 12	53	40 ½			

Butt Weld, extra strong, plain ends

¾ to 1 ½	41	24 ½	2 to 3	61	50 ½
1 ½ to 2 ½	47	30 ½	¾ to 1 ½	22	11
2 ½ to 3 ½	53	42 ½	1 ½ to 2 ½	28	13
3 ½ to 4 ½	58	47 ½	2 ½ to 3 ½	28	12
4 ½ to 5 ½	60	49 ½	3 ½ to 4 ½	30	14

Lap Weld, extra strong, plain ends

2	53	42 ½	2	23	9
2 ½ to 4	57	46 ½	2 ½ to 4	29	15
4 ½ to 6	56	45 ½	4 ½ to 6	28	14
7 to 8	52	39 ½	7 to 8	21	7
9 and 10	45	32 ½	9 to 12	16	2
11 and 12	44	31 ½			

To the large jobbing trade the above discounts are increased by one point, with supplementary discounts of 5 per cent on black and 1½ points, with a supplementary discount of 5 per cent, on galvanized.

## Boiler Tubes

Lap Welded Steel	Charcoal Iron
2 to 2 ½ in. 27	1 ½ in. 18
2 ½ to 3 in. 37	1 ¾ to 2 ¼ in. 8
3 in. 40	2 to 2 ½ in. 2
3 ½ to 4 in. 42 ½	2 ½ to 3 in. 7
4 to 13 in. 46	3 ½ to 4 ½ in. 9

Less carload lots 4 points less.  
Standard Commercial Seamless Boiler Tubes  
Cold Drawn  
3 and 3 ½ in. 36  
3 ½ and 3 ¾ in. 37  
4 in. 41  
4 ½ in. and 5 in. 33  
Hot Rolled  
3 and 3 ½ in. 38  
3 ½ in. and 3 ¾ in. 39  
4 in. 43

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extras for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be sold at mechanical tube list and discount. Intermediate sizes and gages not listed take price of net larger outside diameter and heavier gage.

## Seamless Mechanical Tubing

Carbon under 0.30, base 83 per cent off list  
Carbon 0.30 to 0.40, base 81 per cent off list  
Plus usual differentials and extras for cutting. Warehouse discounts range higher.

## Seamless Locomotive and Superheater Tubes

Cents per Ft.	Cents per Ft.
2-in. O.D. 12 gage 15	2 ½-in. O.D. 10 gage 20
2-in. O.D. 11 gage 16	3-in. O.D. 7 gage 35
2-in. O.D. 10 gage 17	1 ½-in. O.D. 9 gage 15
2 ½-in. O.D. 12 gage 17	5 ¾-in. O.D. 9 gage 55
2 ½-in. O.D. 11 gage 18	5 ½-in. O.D. 9 gage 57

## Tin Plate

Standard cokes, per base box \$5.50

## Terne Plate

(Per Package, 20 x 28 in.)	
8-lb. coating, 100 lb. base \$11.00	20-lb. coating I. C. \$14.90
8-lb. coating I. C. 11.30	25-lb. coating I. C. 16.20
12-lb. coating I. C. 12.70	30-lb. coating I. C. 17.35
15-lb. coating I. C. 13.95	35-lb. coating I. C. 18.35
	40-lb. coating I. C. 19.35

## Sheets

Blue Annealed

Nos. 9 and 10 (base), per lb. 3.00c.  
Box Annealed, One Pass Cold Rolled

No. 28 (base), per lb. 3.75c. to 3.85c.  
Automobile Sheets

Regular auto body sheets, base (22 gage), per lb. 5.35c.  
Galvanized

No. 28 (base), per lb. 5.00c.  
Long Ternes

No. 28 gage (base), 8-lb. coating per lb. 5.30c.  
Tin-Mill Black Plate

No. 28 (base), per lb. 3.85c.

Manufacturers have pamphlets which can be had upon application, giving price differentials for gage and extras for length, width, shearing, etc.

## Freight Rates

All freight rates from Pittsburgh on finished iron and steel products, carload lots, per 100 lb.:

Philadelphia, domestic \$0.32	Buffalo \$0.265	St. Louis \$0.43	Pacific Coast \$1.34
Philadelphia, export 0.235	Cleveland 0.215	Kansas City 0.735	Pac. Coast. ship plates 1.20
Baltimore, domestic 0.31	Cleveland, Youngstown 0.19	Kansas City (pipe) 0.705	Birmingham 0.58
Baltimore, export 0.225	Comb. 0.29	St. Paul 0.60	Memphis 0.56
New York, domestic 0.34	Detroit 0.29	Omaha 0.735	Jacksonville, all rail 0.70
New York, export 0.255	Cincinnati 0.29	Omaha (pipe) 0.705	Jacksonville, rail and water 0.415
Boston, domestic 0.365	Indianapolis 0.31	Denver 1.27	New Orleans 0.67
Boston, export 0.255	Chicago 0.34	Denver (pipe) 1.215	

The minimum carload to most of the foregoing points is 6,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 35c.; ship plates, 40c.; ingot and muck bars, structural steel, common wire products including cut or wire nails, spikes, and wire hoops, 40c.; sheets and tin plates, 40c.; sheets, No. 12 gage and lighter, 50c.; rods, 40c.; wire rope cable and strands, 45c.; wire fencing, netting and stretcher, 40c.; pipes not over 12 in. in diameter, 55c.; over 12 in. in diameter, 2½c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.

# Prices of Raw Materials, Semi-Finished and Finished Products

## Ores

### Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron.....	\$6.45
Old range non-Bessemer, 51½ per cent iron.....	5.70
Mesabi Bessemer, 55 per cent iron.....	6.20
Mesabi non-Bessemer, 51½ per cent iron.....	5.55

### Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian.....	11½c.
Iron ore, Swedish, average 66 per cent iron...	10.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal.....	43c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus.....	41c.
Manganese ore, Brazilian or Indian, nominal	42c.
Tungsten ore, per unit, in 60 per cent concentrates .....	\$8.50
Chrome ore, basic, 48 per cent Cr <sub>2</sub> O <sub>3</sub> , crude, per ton, c.i.f. Atlantic seaboard.....	\$18.00 to 28.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS <sub>3</sub> , New York.....	75c. to 85c.

## Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$117.50
Ferromanganese, British, 80 per cent, f.o.b. Atlantic port, duty paid.....	117.50
Spiegeleisen, domestic, 19 to 21 per cent, per ton, furnace .....	\$45.00 to 47.50
Spiegeleisen, domestic, 16 to 19 per cent, furnace, per ton.....	44.00 to 46.50
Ferrosilicon, 50 per cent, delivered, per gross ton .....	82.50
Ferrosilicon, Bessemer, 10 per cent, per ton, furnace .....	43.50
Ferrosilicon, Bessemer, 11 per cent, per ton, furnace .....	46.80
Ferrosilicon, Bessemer, 12 per cent, per ton, furnace .....	50.10
Ferrosilicon, Bessemer, 13 per cent, per ton, furnace .....	54.10
Ferrosilicon, Bessemer, 14 per cent, per ton, furnace .....	59.10
Silvery iron, 6 per cent, per ton, furnace....	32.00
Silvery iron, 7 per cent, per ton, furnace....	33.00
Silvery iron, 8 per cent, per ton, furnace....	34.50
Silvery iron, 9 per cent, per ton, furnace....	36.50
Silvery iron, 10 per cent, per ton, furnace....	38.50
Silvery iron, 11 per cent, per ton, furnace....	41.80
Silvery iron, 12 per cent, per ton, furnace....	45.10
Ferrotungsten, per lb. contained metal.....	88c. to 90c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered .....	12c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr., per lb.....	11.50c.
Ferrovanadium, per lb. contained vanadium..	\$3.50 to \$4.00
Ferrocobaltititanium, 15 to 18 per cent, per net ton .....	200.00

## Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines .....	\$22.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines .....	23.50
Per 1000 f.o.b. works:	
Fire Clay:	
Pennsylvania .....	High Duty \$48.00 to \$51.00 Moderate Duty \$43.00 to \$46.00
Maryland .....	50.00 to 53.00 45.00
Ohio .....	45.00 to 47.00 40.00 to 43.00
Kentucky .....	45.00 to 47.00 42.00 to 45.00
Illinois .....	48.00 to 50.00 45.00 to 47.00
Missouri .....	48.00 to 50.00 38.00 to 43.00
Ground fire clay, per net ton.....	6.50 to 9.50
Silica Brick:	
Pennsylvania .....	42.00 to 45.00
Chicago .....	52.00
Birmingham .....	48.00
Ground silica clay, per net ton.....	10.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	40.00
Chrome Brick:	
Standard size, per net ton.....	50.00

## Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$42.50
Rolling billets, 2-in. and under.....	42.50
Forging billets, ordinary carbons.....	47.50
Sheet bars, Bessemer.....	42.50
Sheet bars, open-hearth.....	42.50

Slabs .....	\$42.50
Wire rods, common soft, base, No. 5 to ¼-in.....	51.00
Wire rods, common soft, coarser than ¼-in....	\$2.50 over base
Wire rods, screw stock.....	\$5 per ton over base
Wire rods, carbon 0.20 to 0.40.....	\$3 per ton over base
Wire rods, carbon 0.41 to 0.55.....	\$5 per ton over base
Wire rods, carbon 0.56 to 0.75.....	\$7.50 per ton over base
Wire rods, carbon over 0.75.....	\$10 per ton over base
Wire rods, acid .....	\$15 per ton over base
Skelp, grooved, per lb.....	2.40
Skelp, sheared, per lb.....	2.40
Skelp, universal, per lb.....	2.40

## Finished Iron and Steel, f.o.b. Mill

Rails, heavy, per gross ton.....	\$43.00
Rails, light, new steel, base, per lb.....	2.25c.
Rails, light, rerolled, base, per lb.....	2.00c. to 2.15c.
Spikes, ¾-in. and larger, base, per 100 lb.....	\$3.15
Spikes, ½-in., ⅝-in. and ¾-in., base per 100 lb.	\$3.25 to 3.75
Spikes, ¾-in., base, per 100 lb.....	3.25 to 3.75
Spikes, boat and barge, base, per 100 lb.....	3.50 to 3.75
Track bolts, ¾-in. and smaller, base, per 100 lb.	4.15 to 4.50
Track bolts, ¾-in. and larger, base, per 100 lb..	4.75 to 5.50
Tie plates, per 100 lb.....	2.55 to 2.60
Angle bars, per 100 lb.....	2.75
Bars, common iron, base, per lb., Chicago mill.	2.50c.
Bars, common iron, Pittsburgh mill.....	2.40c.
Bars, rails, steel reinforcing, base, per lb.....	2.15c. to 2.25c.
Ground shafting, base, per lb.....	3.65c.
Cut nails, base, per keg.....	\$3.25

## S. A. E. Semi-finished Castelled Nuts and U. S. S. Semi-finished Slotted Nuts

(To jobbers and consumers in large quantities f.o.b. Pittsburgh)

	Per 1000	S. A. E.	U. S. S.
¼-in. ....	\$4.80	\$4.80	
⅜-in. ....	5.50	6.00	
½-in. ....	6.50	7.00	
⅝-in. ....	9.00	9.50	
¾-in. ....	11.00	11.50	
⅞-in. ....	15.00	15.00	
1 in. ....	19.50	20.00	
1 ⅛-in. ....	28.50	28.50	
1 ¼-in. ....	37.00	37.50	
1 ½-in. ....	58.50	60.50	
1 ⅞-in. ....	88.00	97.00	
2 in. ....	132.00	132.00	
2 ¼-in. ....	176.00	176.00	
2 ½-in. ....	220.00	220.00	

Larger sizes—Prices on application

## Alloy Steel

S. A. E. Series Numbers	Bars 100 lb.
2100* (½% Nickel, 10 to 20 per cent Carbon)...	\$3.25 to \$3.50
2300 (3½% Nickel) .....	5.25 to 5.50
2500 (5% Nickel) .....	7.75 to 8.00
3100 (Nickel Chromium) .....	4.25 to 4.50
3200 (Nickel Chromium) .....	6.00 to 6.25
3300 (Nickel Chromium) .....	8.00 to 8.25
3400 (Nickel Chromium) .....	7.00 to 7.25
5100 (Chromium Steel) .....	3.75 to 4.00
5200* (Chromium Steel) .....	8.00 to 8.25
6100 (Chromium Vanadium bars).....	5.00 to 5.25
6100 (Chromium Vanadium spring steel).....	4.75 to 5.00
9250 (Silico Manganese spring steel).....	3.75 to 4.00
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium) .....	5.25 to 5.50
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum) .....	4.50 to 4.75
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum) .....	4.25 to 4.50
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum) .....	4.25 to 4.50

Above prices are for hot-rolled alloy steel bars, forging quality, per 100 lb. f.o.b. Pittsburgh. Billets 4 x 4 in. and larger are \$10 per gross ton less than net ton price for bars of same analyses. On smaller than 4 x 4-in. billets down to and including 2½-in. sq. there is a size extra of \$10 per gross ton; on billets smaller than 2½-in. sq., the net ton bar price applies.

\*Not S. A. E. specifications, but numbered by manufacturers to conform to S. A. E. system.



## STRUCTURAL STEEL BOOKED

### Awards Largest Since First Week of June—Railroads Figure in Fresh Inquiries

With upward of 43,000 tons of fabricated steel work bought in sizable jobs, the past week shows the largest tonnage of sales since the first week of June. The first section of the Central of New Jersey bridge over Newark Bay, taking 22,000 tons, supplied, of course, one-half the total. About 12,500 tons were purchased for private enterprises, such as apartment houses and industrial and factory buildings. Fresh inquiries calling for about 14,000 tons appeared. Besides the five or more school houses for New York on which bids have been taken, among other large buildings pending in New York are five or six apartment hotels of an average of 15 stories and three loft buildings in the Pennsylvania zone of the city. Following the notably large contracting of recent weeks, these prospects are held as likely to stiffen the prices of fabricators. The awards of the week include:

Standard Oil Co., fourth section of building, New York, 800 tons, to Levering & Garrigues Co.

Motor repair shop, New York, Sixteenth Street and Avenue C, 1200 tons, to McClintic-Marshall Co.

Klaus apartment house, New York, 1000 tons, to Hinkle Iron Co.

Apartment hotel, Grand Central area, 5000 tons, to the American Bridge Co., the Thompson-Starrett Co. to do the erecting.

Central Railroad of New Jersey, first part, about one-half, of the bridge to cross Newark Bay, 22,000 tons, to the American Bridge Co.

Jerome Avenue sheds, Interborough company, 3000 tons, to the Levering & Garrigues Co.

Loft building, Thirty-fifth Street and Seventh Avenue, 1200 tons, to Hay Foundry & Iron Works.

Loft building, Thirty-sixth Street and Seventh Avenue, 850 tons, to Hedden Iron Construction Co.

Apartment building for Dwight P. Robinson & Co., Park Avenue, 1400 tons, to the Hedden Iron Construction Co.

Siegel apartment house, New York, 600 tons, to the Paterson Bridge Co.

Schoolhouse, New York, 1500 tons, to the Lehigh Structural Steel Co.

Legislative building, Olympia, Wash., 979 tons, to Poole & McGonigle, Portland, Ore.

Missouri Pacific, girder spans and repairs to bridge No. 102, central division, Gleason, Ark., 151 tons, to American Bridge Co.

Portland Railway, Light & Power Co., power station, Portland, Ore., 131 tons, to Puget Sound Iron & Steel Co., Tacoma.

Chicago Great Western, four 70-ft. deck plate girder spans, 138 tons, to American Bridge Co.

Certainite Products Corporation, plaster mill, Grand Rapids, Mich., 300 tons, to unnamed fabricator.

Science and Law building for Marquette University, Milwaukee, 125 tons, to Lakeside Bridge & Steel Co.

Power Specialty Co., New York, buildings, 120 tons, to Lakeside Bridge & Steel Co.

McCall Publishing Co., Dayton, Ohio, printing building, 500 tons, to Dayton Structural Steel Co. and Burger Iron Works Co.

Columbia River paper mills, Vancouver, Wash., 350 tons, to Lehigh Structural Steel Co.

Cleveland Stone Co., building at Amherst, Ohio, 220 tons, to the Forest City Steel & Iron Co.

Pere Marquette Railroad, bridge over Saginaw River, 500 tons, to American Bridge Co.

Fairfax Exchange building, Bell Telephone Co., Pa., Pittsburgh, 500 tons, to Jones & Laughlin Steel Corporation.

High school, Woodlawn, Pa., 250 tons, to Jones & Laughlin Steel Corporation.

#### Structural Projects Pending

Inquiries for fabricated steel work include the following:

Western Electric Co., power house, Kearny, N. J., 1500 tons.

Four public schools in New York, mentioned last week, averaging 1500 tons each, No. 196 in Brooklyn and Nos. 98, 75 and 78 in the boroughs of Manhattan and Bronx.

Parochial school, Brooklyn, 250 tons.

Isbell-Porter Co., Buffalo, retort house, 700 tons.

Washington and Lee University, Lexington, Va., stadium, 250 tons.

Norma Co. of America, Stamford, Conn., 300 tons.

Pan-American Petroleum Co., ten oil storage tanks for California fields, 3000 tons.

U. S. Gypsum Co., plant at Sweetwater, Tex., 400 tons.

Ford Motor Co., plant building, River Rouge, Mich., 3750 tons.

Illinois Department of Public Works, waterways division, lock and dam, Lockport, Ill., 2150 tons.

Bridge work for State of Illinois, 500 tons, general contracts to be awarded Sept. 10.

County Commissioners, Cleveland, Hillside Road bridge, 200 tons.

Kresge Co., store building at Cincinnati, 300 tons, bids in.

Milwaukee Lodge No. 46, B. P. O. E., general contract for the superstructure of clubhouse let to Raulf Co., Patton Building, Milwaukee, on revised specifications embracing about 350 to 400 tons of structural steel and 600 to 700 tons of reinforcing bars, instead of 2615 tons of structural shapes in original design and 1500 tons in first revised design; contractor to sublet steel and bars about Sept. 1 or 3.

## RAILROAD EQUIPMENT BUYING

### New Inquiries for Cars, But Situation Shows No Notable Change

Nothing significant has developed in the railroad equipment field in respect to purchases of rolling stock or motive power. The chief new items are the following:

The Pere Marquette has placed 300 underframes with the Pressed Steel Car Co. for refrigerator cars to be built in its own shops.

The Union Pacific has ordered 200 refrigerator cars from the Standard Tank Car Co.

The Santa Fe is expected to place orders tomorrow against its inquiry for 200 flat and 300 gondola cars.

The Chicago & Alton has revived its inquiry for cars and is now in the market for 250 gondola cars and 360 all-wood gondola bodies with steel center sills.

The Chicago & Northwestern, which placed an order with the General American Car Co. earlier in the year for 1000 box cars, has specified that the type be changed to stock cars.

The Department of Trade and Commerce, Ottawa, Canada, has received from Trade Commissioner D. H. Ross copies of tender forms and specifications for the following equipment for the Victorian Government Railway Department, Melbourne, Australia: 10 mountain type locomotives; 10 Pacific type locomotives.

### Economic Survey of China

In a 40-page booklet the American Bankers Association, through its commission on commerce and marine, has presented a comprehensive study of China, its industries and possibilities of trade. Analyzing the machinery market, Chinese imports are shown to have increased from \$5,224,000 in 1913 to \$28,042,000 in 1920 and \$42,292,000 in 1921. Textile machinery alone in 1921 was nearly four times the total machinery in 1913. Imports of electrical machinery and fittings indicate a growing demand for lighting equipment. Some of the plants are now being run through the day as well as through the night.

The iron and steel trade is reported as having been most gloomy because of the great drop in silver exchange. There was a recovery toward the end of the year.

China's purchasing power may be gaged roughly from the exports of raw silk, which decreased from 21,159 net tons in 1913 to 15,320 tons in 1920 and then partially recovered to 18,386 tons in 1921. Similar decreases are shown in the tea exports, the figure for 1913 having been 55,003 net tons, falling to 19,454 tons in 1920 and partially recovering to 26,946 tons in 1921.

The Cleveland Crane & Engineering Co., Wickliffe, Ohio, tramrail division, has appointed George Perley Morse a distributor of tramrails in the Brooklyn and Long Island territory, with office at 110 William Street, New York.

## NON-FERROUS METALS

### The Week's Prices

Cents per Pound for Early Delivery

Aug.	Copper, New York		Straits Tin		Lead		Zinc	
	Lake	Electro-lytic*	New York	New York	New York	St. Louis	New York	St. Louis
22.....	14.25	13.87½	40.00	6.70	6.45	6.85	6.50	
23.....	14.25	13.87½	40.12½	6.70	6.45	6.85	6.50	
24.....	14.25	13.75	39.87½	6.70	6.50	6.85	6.50	
25.....	14.25	13.75	....	6.70	6.50	6.80	6.45	
27.....	14.25	13.75	40.30	6.75	6.65	6.77½	6.42½	
28.....	14.25	13.75	40.75	6.75	6.65	6.77½	6.42½	

\*Refinery quotation; delivered price ¼c. higher.

### New York

NEW YORK, Aug. 28.

The general situation has changed but little and the demand continues light. The copper market is again dull and slightly easier after some strength last week. The tin market has been quite active at advancing prices. Lead is a little stronger with the demand somewhat improved. Demand for zinc has fallen off and prices are a little easier.

**Copper.**—Last week was a fairly active one, with considerable buying for this time of year, both for foreign and domestic consumption. Prices advanced about ¼c. early last week, but since then the demand has fallen off and the market is again lower and slightly easier. Electrolytic copper is quoted at a minimum of 14c., delivered, but it is not unlikely that an attractive order would be taken at a shade under this price. There is little interest on the part of either foreign or domestic consumers at present and inquiry is exceedingly light. The sudden turn downward in the market late last week is attributed to the publication, by the leading producer of finished copper and brass products, of lower list prices. Lake copper is quoted from 14.25c. to 14.37½c., delivered.

**Tin.**—Since last Tuesday, Aug. 21, the market for Straits tin has been more active than in a long time. The total sales since then are estimated at about 1400 tons. The feature is that consumers have been the largest buyers. On Wednesday, Aug. 22, about 200 tons, mostly futures, changed hands and, after a quiet day Thursday about 250 tons was sold on Friday, Aug. 24, with 200 tons changing hands on Saturday. Most of this business also was futures. Yesterday was by far the most active day, a conservative estimate placing the total sales at around 700 tons. Sales of spot were made early in the day at 40.25c. with 40.37½c. realized late in the day. The same range applied also to future deliveries. Yesterday's business was the largest in a long time. Today the market has been moderately active, with the quotation at 40.75c., New York, for spot Straits. Because of the transactions in the past week, the London market has advanced sharply, until today spot standard was quoted at £192 15s., future standard at £193 15s. and spot Straits at £196 15s., all about £5 and £6 per ton higher than a week ago. The arrivals thus far this month have been 6360 tons, with 2327 tons reported afloat.

**Lead.**—The leading interest advanced its price yesterday, Aug. 27, from 6.50c. to 6.75c., New York, bringing it practically on a level with the prices prevailing for some days in the outside market. Up to that time independents were selling lead on a basis of 6.50c., St. Louis, but, with the advance referred to, that market stiffened until today the quotation is 6.60c. to 6.70c., St. Louis. In the eastern market some independents are asking as high as 6.80c., New York. During most of the week demand has been moderate but steady, consisting mostly of small lots. Some predict a considerably stronger market in the near future.

**Zinc.**—After sales of prime Western for export, variously estimated at 5000 to 8000 tons, last week, the market has turned exceedingly quiet and slightly easier, with quotations for early delivery at 6.40c. to 6.45c.,

St. Louis, or 6.75c. to 6.80c., New York. Domestic demand continues exceedingly small and new business is insignificant. There continues to be no pressure on the part of producers to sell and other conditions have changed but slightly in the week.

**Nickel.**—Shot and ingot nickel are quoted unchanged at 29c. to 32c. per lb., with electrolytic nickel held at 32c. by the leading producers. In the outside spot market quotations for shot and ingot nickel are 29c. to 32c.

**Antimony.**—Wholesale lots of Chinese metal for early delivery quoted at 7.50c. to 7.60c., New York, duty paid.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, is quoted by importers at 26.50c. to 27c., New York, duty paid, in such cases where they can obtain it from foreign producers. No quotations are published by the leading domestic producer.

**O'd Metals.**—The market generally shows little change. Business has been a little more active. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible.....	13.75
Copper, heavy and wire.....	12.75
Copper, light and bottoms.....	10.75
Heavy machine composition.....	10.75
Brass, heavy.....	7.75
Brass, light.....	6.50
No. 1 red brass or composition turnings..	9.00
No. 1 yellow rod brass turnings.....	7.50
Lead, heavy.....	6.00
Lead, tea.....	5.00
Zinc.....	5.00

### Chicago

AUG. 27.—Tin, lead and zinc have advanced on improved demand. Copper remains weak with price shading not uncommon. Among the old metals lead pipe and zinc have advanced. We quote in carload lots, Lake copper, 14.75c.; tin, 41.50c.; lead, 6.50c.; spelter, 6.50c.; antimony, 9c., in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 11.25c.; copper bottoms, 9.50c.; red brass, 8.50c.; yellow brass, 6c.; lead pipe, 5c.; zinc, 4.25c.; pewter, No. 1, 20c.; tin foil, 24c.; block tin, 30c.; all buying prices for less than carload lots.

### Connellsville Region Prepared to Increase Coal and Coke Production

UNIONTOWN, PA., Aug. 25.—There is considerable speculation in the Connellsville coke region as to the prospects for an anthracite suspension on Sept. 1. This has been accentuated by the number of inquiries for both coal and coke which have come into the region during the week just closed and the requests for options on tonnage for September and October. The coke region is in excellent condition to meet extra demands made upon it by reason of any suspension in the anthracite field.

There is a surplus of labor and mines and ovens not now in operation can be started up on short notice. There have been some rumors of some sympathetic action on the part of workers, but these are without foundation.

During the past 30 days there has been considerable activity among certain groups of union men and sympathizers, but close observers believe that this centers principally in a controversy between the regular union men, Lewis men, and the insurgents.

Coke quotations strengthened during the week and there has been an increased production although not a material gain. Furnace coke quotations are \$4.75 and \$5; foundry coke, \$5.50 to \$6; Sewickley steam coal, \$1.50 and \$1.65; Pittsburgh steam coal, \$1.40 and \$1.75; three-quarter lump, \$2.15 to \$2.40; slack, \$1.50 to \$1.65; by-product, \$2.25 to \$2.50.

The Dravo Contracting Co., Pittsburgh, was low bidder for a steel derrick boat for service in the Kanawha River, bids for which recently were opened in the United States Engineers' office, Huntington, W. Va. The Dravo company bid was \$25,870.



## PERSONAL

Edward Adams Mead, assistant in metallography, Massachusetts Institute of Technology, Cambridge, Mass.; Stanley A. Richardson, instructor in metallurgy, Lewis Institute, Chicago; Irving B. Smith, manufacturer of electrical apparatus, Philadelphia, and Igor N. Zavarine, instructor in metallography, Massachusetts Institute of Technology, Cambridge, Mass., have been proposed for membership in the Iron and Steel Institute, and their names will be presented at the September meeting in Milan, Italy.

S. H. Keller, Marion, Ohio, district sales agent, the Berger Mfg. Co., Canton, Ohio, has retired after a long period of service and has been succeeded by A. G. Schreiner, who has also been with the Berger Mfg. Co. for many years. Henry Resch, who represented the company in the Canton, Ohio, district, has also retired and has been succeeded by J. W. Wirth.

W. G. Mather, president Cleveland Cliffs Iron Co., and Samuel Mather, of Pickands, Mather & Co., Cleveland, sailed for Europe last week.

C. E. Hoyt, secretary of the American Foundrymen's Association, sails from New York on the George Washington, Sept. 1, and will join the American foundrymen's tour in London, going later to Paris for the International Foundrymen's Convention.

John Howe Hall, consulting engineer, New York, has been chosen by the board of awards of the American Foundrymen's Association as the first recipient of the J. H. Whiting gold medal, which was established by a \$5,000 gift announced at the association's convention of 1922. Mr. Hall's selection is on the score of his achievements in metallurgy in the steel casting industry. The same board of awards has named Enrique Touceda, consulting metallurgical engineer and professor of metallurgy at Rensselaer Polytechnic Institute, Troy, N. Y., to receive the John A. Penton gold medal, which was also established in 1922. The award is in recognition of Mr. Touceda's work in the development of practice in the American malleable casting industry. The presentations will be made at the 1924 convention of the American Foundrymen's Association.

J. Leonard Replogle has resigned as president of the Vanadium Corporation of America, but will retain his large holdings and will continue as a director. Col. Merrill G. Baker, vice-president, will assume the duties of president pending the election of Mr. Replogle's successor, which will probably take place immediately after the annual meeting scheduled for Sept. 10.

W. B. Duncan has accepted the professorship of Mechanical Engineering at the Georgia School of Technology, Atlanta, Ga., having resigned his position as professor of Mechanical Engineering at the University of Idaho.

Dr. Thomas Addison has retired at his own request as Pacific Coast manager of the General Electric Co., and will be succeeded by J. A. Cranston, formerly Northwestern manager. Dr. Addison has been with the company for thirty-three years, and has held his present position since 1892.

Emory W. Jones has been appointed district sales representative of the Carborundum Co., refractory division, Perth Amboy, N. J., with offices in Cleveland and Detroit. His territory will include northwestern Pennsylvania, northern Ohio and the lower peninsula of Michigan.

Olaf E. Oleson has resigned as president of the Edward Valve & Mfg. Co., East Chicago, Ind., and W. H. Crawford has been elected to succeed him.

C. F. Freeman of the Surface Combustion Co., New York has been transferred from the position of manager of the Pittsburgh district to that of chief engineer. His address is now 366 Gerard Avenue, New York.

John F. Cunningham, Jr., has been appointed assistant manager of the production department of the Schenectady works of the General Electric Co.

Walter Van Cleve, formerly of the New York office of the Crucible Steel Co. of America, has been transferred to the Cincinnati sales office.

J. H. Kempster has been appointed general superintendent of the Buffington plant of Universal Portland Cement Co. at Buffington, Ind., succeeding the late C. O. Soderquist.

J. T. Kauffman has resigned as secretary and treasurer of the Ohio Steel Foundry Co., Lima, Ohio, to devote his time to the Vapo Stove Co., Lima, Ohio, of which he is president.

J. H. Bode, who has been chief engineer for several years of the Mackintosh-Hemphill Co., Pittsburgh, recently was elected vice-president of the company in charge of operations. W. L. Ditzgas, has been promoted from the position of chief draftsman to assistant chief engineer of the company.

Louis Davidson, Buffalo, one of the controlling factors in the Union Drawn Steel Co., Beaver Falls, Pa., has been elected president of the company, succeeding the late Frederick N. Beegle. Mr. Davidson will continue to make his home in Buffalo, and E. S. Hoopes will have active charge of the plant, having been elected vice-president and general manager. Mr. Hoopes was with the company until the outbreak of the World War, when he entered the Army, and more recently had been engaged in the oil business.

William E. Cross, treasurer of Clemson Brothers, Inc., manufacturer of hack saw blades, Middletown, N. Y., recently completed a four months' business and pleasure trip through Europe and England, including Germany, France, Belgium, Holland, Denmark, Sweden and Norway.

### By-Product Coke for House Heating

Tests of by-product coke for house heating were recently conducted by the Bureau of Mines at its Pittsburgh and Minneapolis experiment stations. With different types of steam boilers suitable for heating 7 or 8-room houses as high efficiencies were obtained with by-product coke as with anthracite coal. The efficiencies obtained with Pittsburgh and Illinois bituminous coal were 8 to 20 per cent lower than those obtained with coke.

The anthracite used in these tests was a mixture of egg and nut sizes and was considerably cleaner than that ordinarily obtained in the Pittsburgh market. The by-product coke tested at Pittsburgh was of domestic size, made from a mixture of several coals from the Klondike region near that city. The by-product coke tested at Minneapolis was of domestic size and made from eastern coal.

With the same attention to the fire, the Bureau of Mines found that coke gives much more uniform temperature than bituminous coal. In addition, coke is a clean fuel and makes neither smoke nor soot, an advantage difficult to express in exact figures. It is nearly as good a fuel as the domestic sizes of anthracite, and if anthracite is unavailable at reasonable prices a by-product coke makes a good substitute.

The following condensed instructions as to proper methods for the burning of coke in house-heating equipment are given by the Bureau of Mines:

Carry a deep bed of fuel; one about 18 in. thick gives the best results.

Use very little draft after the fire is started, and keep it always under control. The success of even heating depends on careful draft regulation.

Do not stir the fuel bed; clean the fire in the morning.

Use sized coke;  $\frac{1}{2}$  to 2 in. for furnaces, boilers and stoves;  $\frac{1}{2}$  to 4 in. for open grates.

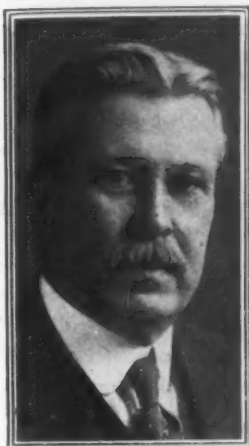
Do not allow ash to accumulate in the ash pit.

The results of the foregoing tests are given in technical paper 315, by Henry Kreisinger, John Blizard, H. W. Jarrett and J. J. McKitterick. Copies of this paper and of technical paper 242, giving detailed instructions as to the use of coke for domestic heating, may be obtained from the Department of the Interior, Bureau of Mines, Washington.

## OBITUARY

### Waldo H. Marshall

WALDO H. MARSHALL, chairman of the board of directors and president of the Consolidated Machine Tool Corporation of America, and former president, from 1906 to 1917, of the American Locomotive Co., died Aug. 23 at his summer home at Barnstable, Mass., after an illness of about a week. His wife died a few weeks ago. A son, Ralph Marshall, of the Chicago Pneumatic Tool Co., and a daughter, Mrs. D. B. Sterrett, Warm Springs, Va., survive.



WALDO H. MARSHALL

Mr. Marshall, who was 59 years old, devoted the early years of his business life to railroad operating work. From 1897 to 1899 he was assistant superintendent of motive power for the Chicago & North Western Railroad, then becoming superintendent of motive power, general superintendent and finally general manager of the Lake Shore & Michigan Southern Railroad, leaving it in 1906, when he became president of the American Locomotive Co.

In 1917 Mr. Marshall was associated with J. P. Morgan & Co., and in January, 1918, he was appointed chief of the Production Division of the Ordnance Department, U. S. Army. He had also been a member of the Naval Consulting Board, and of the Committee on Industrial Preparedness of New York, which made a State survey of industrial resources. He was a director of the American Brake Shoe & Foundry Co., the Bucyrus Co. and the Chatham & Phenix Bank, New York.

In March, 1923, upon the death of C. K. Lassiter, who was president of the Consolidated Machine Tool Corporation, Mr. Marshall, who was then chairman of the board of directors, also took over the duties of the president and continued in that dual capacity up to the time of his death.

JOHN E. SNYDER, president and founder of the business of J. E. Snyder & Son, Inc., Worcester, Mass., manufacturer of upright drilling machines, died suddenly, Saturday, Aug. 25, in the wilderness of Nova Scotia, where with his wife and daughter he was spending a vacation. Mr. Snyder was born in Lubec, Me., in 1850 and as a boy was for some time a sailor. As the Civil War was ending he was a cabin boy on a revenue cutter. He went to Worcester in his young manhood and learned the machinist's trade with Lathe & Morse, who were among the first of American engine lathe builders. In 1872, with but \$600 capital, Mr. Snyder established his own shop for the building of drills, developing the business to its present prosperous proportions. His only partner was his son, Milton C. Snyder, treasurer of the company.

MILTON K. HILL, one time president M. B. Hill Mfg. Co., Worcester, Mass., and a well-known inventor, died Aug. 24 in that city. Mr. Hill was 72 years of age.

DAVID BENTON JONES, chairman board of directors of the Mineral Point Zinc Co., Chicago, died at his summer home at Lake Forest, Ill., Aug. 22, at the age of 69.

FAUSTIN PRINZ, founder and president-treasurer Prinz & Rau Mfg. Co., Milwaukee, died Aug. 18, aged 72 years. In 1888 he founded the Prinz & Rau Mfg. Co. to manufacture flour mill equipment. His eldest son, Carl Prinz, vice-president of the company, has had

active charge of the business for the past two years, and succeeds his father as president.

VICTOR WHITE, Western sales manager of the Flat Top Fuel Co., and well known in the coal and coke trade, died at his home in Fort Thomas, Ky., Aug. 24, after an illness of one year.

PHILIP WEISS, for 30 years manager of the Philadelphia office of the Ingersoll-Rand Co., New York, died recently at Dayton, Ohio. His home was at Jersey City. He was 68 years old. He leaves a wife, two sons and a daughter.

FRANK A. DOEPKE, owner of the Doepke Metal Pattern Works, Milwaukee, died Aug. 19 from a stroke of apoplexy. He was born in Milwaukee in 1864 and founded the business in 1907.

### Proposed Rate Reductions from Chicago to the Pacific Coast

WASHINGTON, Aug. 28.—Sharp reductions in rail rates on iron and steel products, together with a number of other items, from Chicago and points west to the Pacific Coast, are proposed in an application filed with the Interstate Commerce Commission by the Transcontinental Freight Bureau. The bureau has asked the commission to set a hearing at an early date and, if possible, to hold only one hearing. This request is made because of the importance of the application. The proposed reductions, the bureau said, are necessary to meet competition of the Panama Canal. It is proposed to reduce the rate on general iron and steel products from the farthest east group from \$1.075 to 75 cents. On rails and rail fastenings the proposed reduction is from \$21.79 to \$15 per ton. The proposed reduction on wire goods and wire cable is from \$1.275 to 90 cents.

As stated in THE IRON AGE last week, the railroads are considering the filing of an application which would reduce the rate on iron and steel products from Pittsburgh to the Pacific Coast to \$1.15. This application also would involve Detroit and Atlantic seaboard territory.

Two applications are being considered by the Southern Pacific railroad. One would place the through rate from New York and other Atlantic ports to the Pacific Coast by way of the Morgan steamship line on substantially the same basis as those charged by inter-coastal shipping companies. In some instances the reductions would be as much as 50 per cent from the present rates. The Southern Pacific also is giving consideration to filing an application to make lower rates from Gulf to Pacific Coast ports.

### American Shipping Losing Its Grip

Department of Commerce figures showing tonnage of vessels entered and cleared in the foreign trade give a total of ship entries for the fiscal year ended June 30, 1923, at 66,888,096 net tons, compared with 61,232,543 tons in the 1922 fiscal year. This represents an increase of 9.2 per cent.

Ships under the American flag included in the total entrances increased from 29,920,203 net tons to 30,702,396, this gain being 2.6 per cent. Ships under foreign flags increased from 31,312,340 tons to 36,185,700 tons, or 15.6 per cent.

The American proportion of the total fell from 48.9 per cent to 45.9 per cent.

Secretary of the Interior Hubert Work, in a letter addressed to Secretary James H. Dunlap of the American Society of Civil Engineers, in explaining the retirement from office of Director A. P. Davis, of the Reclamation Service, said the change was due to the natural development of this work past the stage where the services of engineers were to be considered of first importance. It was stated by Secretary Work that instead of engineering problems the Government now faced the necessity of dealing "with the problems of water users and the collection of the original cost of the project as contemplated by the law."



# Machinery Markets and News of the Works

## NO GAIN IN BUSINESS

### Machine Tool Trade Is Quiet, But Improvement Is Expected

General Opinion in Various Centers Is That a Better Volume of Orders Will Come Next Month

The machine-tool trade is looking forward to a better demand for machines as soon as the fall plans of manufacturing companies have been formulated, probably next month. The past week has been exceedingly quiet. There is a fair demand for single tools, particularly used tools in good condition, but on the whole the lack of interest in buying tools is not unusual of this time of year.

Few of the dire predictions about the falling off in automobile production have come true. Instead, the

automobile manufacturers appear to be very busy making plans for the 1924 season, and inquiries for tools, especially automatic equipment, are coming from both car builders and auto parts makers. Gray & Davis, Inc., Boston, has an inquiry out for 15 to 20 small screw machines and several automatic screw machines. Other inquiries from the automotive field include several for turret lathes and for automatic screw machinery in lots up to eight or ten machines.

Very few important orders are being placed. One of the most interesting was an order from the Brazilian Navy Department for eight engine lathes, which went to a Cincinnati builder. A Cleveland school order for 18 machines, metal and woodworking, was divided among several dealers. An inquiry has been put out by the Bullard Machine Tool Co., Bridgeport, Conn., for 14 miscellaneous tools for its own shops. The Pullman Co. is inquiring at Chicago for five tools.

## New York

NEW YORK, Aug. 28.

AUGUST has been one of the lightest months of the year for the majority of machine-tool sellers. Business has not shown any improvement in the past week. A few railroad orders are being placed, but nothing unusual has developed. An Eastern machine-tool builder has received an order for a large planer, 15 x 10 x 30 ft. from the Hooven, Owens & Rentschler Co., Hamilton, Ohio, and the Pittsburgh Plate Glass Co., Pittsburgh, has ordered a 6-ft. horizontal boring, drilling and milling machine.

Immediate plans of the Brooklyn Edison Co., 360 Pearl Street, Brooklyn, provide for an expenditure of more than \$6,500,000, for machinery for power plants, cables and system equipment, and other electrical and mechanical apparatus. The total expenditure for this purpose throughout the year will aggregate \$23,000,000.

The International Harvester Co., 960 Broadway, Albany, N. Y., with headquarters at Chicago, is having plans drawn for the construction of a two-story local automobile service and repair building, 50 x 210 ft., for motor truck service, estimated to cost \$80,000.

The Noble Machinery Co., Inc., 3 Howard Street, New York, has inquiries out for a number of automatic screw machines, Brown & Sharpe type.

A machine shop will be installed in the two-story automobile service and repair building, 100 x 145 ft., to be erected at 250-56 Bradhurst Avenue, New York, by the Watson Home Co., 291 Broadway, M. Wertheim, head, estimated to cost \$100,000. Meisner & Uffner, 543 East Tremont Avenue, are architects.

The National Lead Co., 111 Broadway, New York, has awarded a general contract to the Rufus H. Brown Co., 356 Pearl Street, Brooklyn, for the erection of a five-story and basement addition to its plant at 105 York Street, Brooklyn, 47 x 80 ft., estimated to cost \$100,000. Frank H. Quimby, 110 William Street, New York, is architect.

A two-story addition, 40 x 60 ft., will be erected at the steam power plant of the Brooklyn Borough Gas Co., Brooklyn, at West Twelfth Street and Canal Avenue. Bloch & Hesse, 18 East Forty-first Street, New York, are architects.

A machine shop and parts department will be installed in the new five-story automobile service building, 75 x 120 ft., to be erected by the Albany Garage Co., 28 Howard Street, Albany, N. Y., estimated to cost \$275,000. A lathe, drill press and other equipment will be installed. T. L. Gleason, 45 Maiden Lane, is architect.

The Fox-Gelberg Holding Corporation, C. J. Fox, president, 1254 Fifty-first Street, Brooklyn, is perfecting plans for the construction of a ten-story ice and refrigerating and

industrial building, 140 x 250 ft., on Washington and Little West Twelfth Streets, New York, to cost approximately \$1,000,000, with equipment.

Edward H. Jewett, 948 Penobscot Building, Detroit, and associates, have consummated arrangements for the purchase of a controlling interest in the DeForest Radio Telephone & Telegraph Co., 1391 Sedgwick Avenue, New York, manufacturer of wireless instruments and equipment, for a consideration of about \$1,000,000. Immediate plans provide for considerable expansion in manufacturing facilities for larger output. Dr. Lee DeForest, heretofore head of the company, will continue in close association with the new organization, of which Mr. Jewett has been elected president.

A one-story automobile service and repair building will be erected by Cushman's Sons, Inc., 461 West 125th Street, New York, in connection with a new three-story baking plant at 28-30 Lawrence Street, to be used for company trucks and cars. L. S. Beardsley, 116 West Thirty-ninth Street, is architect. Lewis A. Cushman is president.

A machine shop will be installed in the new eight-story automobile service and repair building, 100 x 350 ft., to be erected by Gahrman-Finchbeck Co., Inc., 130 Quail Street, Albany, N. Y., on Central Avenue, to cost about \$160,000, for which a general contract has been let to the J. M. Myers Engineering & Contracting Co., 25 Euclid Avenue.

The Pioneer Instrument Co., New York, manufacturer of aircraft instruments, will remove and consolidate its plant with that of Brandis & Sons, Inc., 754-58 Lexington Avenue, Brooklyn, manufacturer of engineering and nautical instruments, recently purchased. The combined production facilities will be extended, both organizations continuing operations as individual units. William F. Brandis will continue as president of the Brandis company.

Manual training equipment will be installed in the new high school to be erected at Clifton, N. J., estimated to cost \$175,000, for which bids will be received on a general contract until Sept. 14. Lee & Hewitt, 152 Market Street, Paterson, N. J., are architects.

A complete machine shop and parts department, with lathe, drill press, cylinder grinding machines and other equipment will be installed in the service and repair building to be erected by the Union Garage Co., 374 King Street, Perth Amboy, N. J., to be one-story, 91 x 152 ft., estimated to cost \$90,000. The company is local representative for the Peerless and Buick automobiles. Morgan F. Larson is president, and Alvin B. Fox, secretary and treasurer.

The Royal Motor Coach Co., Inc., 285 Bloomfield Avenue, Caldwell, N. J., recently organized with a capital of \$500,000, is negotiating for the purchase of property in the vicinity of Rahway, N. J., for the establishment of a new plant for the manufacture of automobile buses. Equipment will be provided for an initial monthly production of about 5 cars, to sell for \$7,000, each, and which will be increased to

## The Crane Market

Both locomotive and overhead traveling cranes are quieter this week with few new inquiries reported but a fair volume of business is still pending. An inquiry is reported from the Worthington Pump & Machinery Corporation, Harrison, N. J., for a 5-ton hand power crane with electric hoist, preferably used equipment, for installation at the Blake & Knowles plant, Cambridge, Mass. The Phoenix Utility Co., 71 Broadway, New York, which has closed on a 100-ton and a 60-ton overhead crane, is not yet reported to have placed its order for a 15-ton gantry crane, pending for some time. The General Engineering & Management Corporation, 165 Broadway, New York, is receiving bids on a 15-ton overhead-traveling crane. It is stated that the hoists for the 33 jib and pillar cranes recently purchased by the Pennsylvania Railroad, eastern region, were furnished by the American Engineering Co., Philadelphia. The report that has been current of a large purchase of electric hoists by a company in Connecticut was probably a result of an order placed by the American Brass Co., Waterbury, Conn., with the Franklin Moore Co., Winsted, Conn., duplicating a number of Franklin Moore hoists that the company has had in operation for a number of years. A recent purchase of a list of eight overhead cranes was made by the Edward G. Budd Mfg. Co., Philadelphia. It included one 15-ton, 68-ft. span and a 10-ton and six 5-ton overhead cranes of 22-ft. span.

Among recent purchases are:

Fitzgibbons Boiler Co., 47 West Forty-second Street, New York, a 10-ton, 23-ft. 8-in. span electric traveling crane from the Bedford Foundry & Machine Co., through Philip T. King, 30 Church Street, New York.

Phoenix Utility Co., 71 Broadway, New York, a 100-ton overhead crane from the Niles-Bement-Pond Co. and a 60-ton overhead crane from the Cleveland Crane & Engineering Co. A 15-ton gantry crane is still pending.

15 machines at an early date. The new company is headed by Ralph De Camp, Livingston, N. J., now operating a motor bus line in this section, and C. Easman Jacobus, 111 North Mountain Avenue, Montclair, N. J.

The Thatcher Furnace Co., St. Francis Street, Newark, manufacturer of furnaces for domestic service, etc., will concentrate all operations at its local plant, utilizing the new Thatcher Building at 38-41 St. Francis Street. The executive offices will be removed from New York. The branch plant at Garwood, N. J., will be continued as heretofore.

The Manufacturers' Development Co., Charles Lefkowitz, president, 354 South Street, Newark, is having plans prepared for the construction of a number of one-story individual plant units on a 16-acre tract of land on South Street, to cost in excess of \$200,000. The structures will be leased and occupied for metal-working, machine shops and other kindred service.

William C. Ridway and Herman Ringel, receivers for the Hoboken Paper Mill Co., Hoboken, N. J., with plant and properties at Rossmann and Stockport, N. Y., have been authorized to sell the property of the company at the last-noted place.

The Driver-Harris Co., Harrison, N. J., has advised the trade that reports that its plant was recently damaged by a fire which destroyed the Newark ball park, which adjoins its plant, are not correct. No damage was done to plant or equipment and deliveries are not being held up as a result of the fire.

The Vanadium Corporation of America, Bridgeville, Pa., has placed two crushers, one a special Blake type and one a special Dodge type, for crushing ferrovanadium, with the Allis-Chalmers Mfg. Co.

## Export Opportunity

A well known firm in Poland (Inzynier Marczyński i Spółka, Ul. 27 Grudnia, Poznan, Poland) is desirous of obtaining an agency of American manufacturer of various machinery, such as metal and wood working machinery, also electric motors. If possible, exclusive agency for Poland is desired, or at least for the territory of Poznan and Pomorze. Credit references and additional information may be obtained upon application in person or by letter or telephone at the American Polish Chamber of Commerce, 953 Third Avenue, New York.

Dutton Lumber Co., Poughkeepsie, N. Y., two hammer head type, portal cranes with capacity of 5-tons at 90-ft. radius similar to two others recently purchased for Providence, R. I., from Heyl & Patterson.

New York Central & Hudson River Railroad, for the Big Four, a 160-ton wrecking crane from the Industrial Works.

Poughkeepsie Foundry & Machine Co., a monorail system of about 500 ft. for hand power operation, from the Chisholm-Moore Mfg. Co.

Arthur Rehberger & Son, Newark, N. J., a 3-ton underhung hand power crane from the New Jersey Foundry & Machine Co. and a 2-ton chain hoist, from the Chisholm-Moore Mfg. Co.

Railway Steel Spring Co., Latrobe, Pa., a 15-ton, 86-ft. span, two hook overhead traveling crane, from the Shaw Electric Crane Co.

American Sheet & Tin Plate Co., Pittsburgh, a 15-ton trolley for the Shenango works, New Castle, Pa., from the Alliance Machine Co.

Scullyn Steel Co., St. Louis, a 15-ton electric traveling crane from the Whiting Corporation.

Kohler Co., Kohler, Wis., four 5-ton electric traveling cranes, from the Pawling & Harnischfeger Co.

Peninsula Power Co., Madison, Wis., a 10-ton hand power crane, from the Whiting Corporation.

Hubbard-Floyd Co., Boston, Mass., a 10-ton hand power crane, from the Whiting Corporation.

Kansas Electric Power Co., Kansas City, Mo., a 10-ton hand power crane, from the Whiting Corporation.

Boston Elevated Railroad, Boston, Mass., a 20-ton hand power crane, from the Whiting Corporation.

## New England

Boston, Aug. 28.

AUGUST will be a more profitable month with some of the New England machine tool dealers than anticipated. For that reason, and because quite a number of old prospects have come to life again and new ones have developed since last reports, the trade is more optimistic. The most important new inquiry is from the Bullard Machine Tool Co., Bridgeport, Conn., covering 14 items, including a Heald cylinder grinder, a Pratt & Whitney vertical shaper, a Gilbert & Barker furnace, an Economy furnace, a cam milling machine, a Nazel air hammer, a plain type grinder, a shaper, two radial drills, a lathe and a universal milling machine. Actual bookings the past week showed a slight increase over the previous week, but were spread out thinly over the trade and in most instances tools bought were unimportant. Two new 54-in. vertical boring mills taken by a Chicopee, Mass., textile mill, a used 20 ft. plate planer by a local boiler works, and a used 36 in. x 10 ft. iron planer bought by a Massachusetts textile machine interest were perhaps the most important tools involved.

Used tool dealers are cleaned up on certain kinds of machinery. One local firm the past week bought considerable equipment in New Jersey to replenish stocks. Many used tool dealers as well as representatives of large users of metal working equipment are in town to attend the auction sale this week of a large amount of machinery used during the war in a local plant. This sale will be followed by another within the near future at Portsmouth, N. H., Navy Yard.

The Franklin Moore Co., Winsted, Conn., cranes and hoists, has sufficient business on its books to keep the plant running at capacity until after the turn of the new year.

The Winsted Edge Tool Co., Winsted, Conn., has awarded a contract to the Torrington Building Co. to erect a 40 x 80 ft. plant addition at Meadow and Lake Streets.

Conveying machinery will be required by the Pickering Coal Co., Lynn, Mass., for a coal handling plant addition to be erected, plans for which are being drawn.

John J. Grothe Co., Inc., Everett Street, Woburn, Mass., truck manufacturer, contemplates the erection of a one-story, 100 x 200 ft. plant. A. B. McKay is general manager.

The engineer has been selected to draw plans for repairs



to be made to the plant of the New England Boiler Works, Summer Street Extension, South Boston. Bids for the work will be asked in about a week.

Plans are in progress for a one-story, 30 x 39 ft. shop to be erected by J. Nagle, 16 Harrison Street, Worcester, Mass., tinsmith.

The Bird Machine Co., East Walpole, Mass., has awarded the contract for foundations for a one-story, 80 x 140 ft. machine shop to be erected in South Walpole. The Lockwood, Greene & Co., 24 Federal Street, Boston, are engineers.

Bids will be asked in about four months for the erection of a three-story school having 75 class rooms, including shops, laboratories, etc., on Warren, Townsend and Harrison Streets, Roxbury, for the city of Boston.

Plans are in progress for a one-story, 40 x 100 ft. plant contemplated by Julius Nicholson, Wareham Street, Boston. The new plant will be erected on Lexington Street, Hyde Park, Boston.

Wilcox-Crittenden Co., Middletown, Conn., marine hardware, has plans drawn for a three-story plant addition to be used for shipping, grinding and shop departments. The addition will be completed in about six weeks.

The Franklin Machine Co., Providence, R. I., has sold property on the west side of West River Street to the Rhode Island Co. for approximately \$30,000. The latter company will make improvement, but details have not been worked out.

The R. H. Long Motor Co., Worcester, Mass., which recently acquired the plant of the R. H. Long Co., Millbrook Street, that city, in which it was planned to manufacture automobiles, announces such plans have been abandoned. Manufacture will continue in the Framingham, Mass., plant of the company. The Worcester property will be rented for industrial purposes.

The Wilcox-Crittenden Co., Inc., 3 South Main Street, Middletown, Conn., manufacturer of marine hardware, has awarded a general contract to C. O. Stone & Son, Inc., Middletown, for the erection of a three-story addition, 60 x 60 ft.

Bids on revised plans will soon be called by the Board of Education, Vernon, Conn., for the erection of a two-story high and manual training school, 100 x 130 ft., estimated to cost \$300,000. W. B. Chambers, 111 West Fortieth Street, New York, is architect.

Fire, Aug. 17, destroyed a portion of the plant of the Davitt Foundry Co., 191 Liberty Street, Springfield, Mass., with loss estimated at \$75,000, including equipment. Donald J. Davitt is head.

The Magee Furnace Co., Agricultural Avenue, Taunton, Mass., manufacturer of furnaces and heating equipment, has awarded a contract to F. D. Williams, 15 Broadway, for the erection of a new one-story addition, 25 x 140 ft.

The Municipal Light Department, City Hall, Taunton, Mass., is having plans prepared for the erection of a new power house at 40 Court Street, to cost about \$250,000, with equipment. Jackson & Moreland, 387 Washington Street, are engineers.

The Winsted Edge Tool Works, Inc., Winsted, Conn., has awarded a contract to the Torrington Building Co., Torrington, Conn., for the erection of a new addition, 40 x 90 ft.

Hamilton & Hamilton, Inc., 66 Eddy Street, Providence, R. I., jewelry manufacturer, will commence the erection of a new one-story plant, 55 x 200 ft., on Allen Avenue, to cost about \$45,000, with precision and other equipment.

The Mianus Diesel Engine Co., Stamford, Conn., has been formed with a capital of \$1,500,000, to take over and expand the plant and business of the Mianus Motor Works, Inc. The new company will continue the manufacture of internal combustion engines and Diesel units. It is headed by Mark E. O'Connell and Charles F. Bailey, 2226 Loring Place, New York.

The Textile Finishing Machinery Co., 171 Westminster Street, Providence, R. I., will take bids immediately for the erection of a one-story machine and forge shop, to cost about \$100,000, with machinery. Lockwood, Greene & Co., 24 Federal Street, Boston, are architects and engineers.

The Standard Steel & Bearings Co., Plainville, Conn., has awarded a contract to the Lawrence & Coe Construction Co., 372 Trumbull Street, for the construction of a new one-story forge shop addition, 60 x 100 ft.

New interests are negotiating for the purchase of the plant of Stevens-Duryea, Inc., Chicopee, Mass., manufacturer of automobiles, for a consideration of \$450,000, with intention of improving and occupying the works for a kindred line of production. The plant is now being held by F. G. Shaw and H. G. Fisk, receivers.

A machine shop will be installed in the one-story auto-

mobile service and repair building to be erected at Broad and Fisk Streets, Providence, R. I., by Harry Fisher, Tribune Building, estimated to cost \$45,000, for which a general contract has been awarded to Mahoney & Tucker, 72 Weybosset Street.

Manual training equipment will be installed in the new three-story high school to be erected at Edgewood Avenue and Beers Street, New Haven, Conn., estimated to cost \$900,000, for which superstructure work will soon be commenced. C. S. Palmer, 114 Whitney Avenue, is architect.

## Philadelphia

PHILADELPHIA, Aug. 28.

PLANS have been completed by the Philadelphia & Reading Railroad Co., Reading Terminal, Philadelphia, for the erection of an addition to its electric battery plant at Broad Street and Lehigh Avenue.

A machine and repair shop will be installed in the two-story automobile service building, 60 x 80 ft., to be erected at 2444 Germantown Avenue, Philadelphia, by the J. McCaffrey Co., Germantown Avenue. J. Sticker heads the company.

Work will commence on a new one-story power house on the Schuylkill River for the University of Pennsylvania, Philadelphia, with initial capacity of 2600 hp., estimated to cost \$80,000.

The Philadelphia Commercial Museum, Thirty-fourth Street, has received an inquiry from a company at Lahore, India, desiring to be placed in direct contact with American manufacturers of grinding wheels and abrasives. Also, from a concern at Christiania, Norway, for tobacco machinery of American manufacture; from a company at Milan, Italy, in the market for steel balls, ball bearings, crankshafts and kindred products, also desiring to be placed in touch with American exporters of pig iron, scrap iron, alloys, ores, etc.; and from a company at Singapore, Straits Settlements, for automobile parts and accessories.

The Pennsylvania Railroad Co., Broad Street Station, Philadelphia, will remodel and equip the freight car shop at its Altoona, Pa., repair works for a new engine house, with the installation of equipment for engine repairs, coal-handling, etc.

The plant and machinery of the Badenhausen Boiler Co., Cornwells, Pa., will be offered for sale by the Committee in Liquidation on Sept. 17 and 18, with disposition to include locomotive crane; machine tools; steam hammers; 5, 10 and 30-ton traveling cranes, generator sets, etc.

The Therapeutic Devices Co., 140 West Forty-second Street, New York, manufacturer of surgical equipment, etc., has acquired the plant and business of the New York Plano Stool Co., Stroudsburg, Pa. The works will be continued in operation, and extensions and improvements are planned.

Manual training equipment will be installed in the new two-story and basement high school to be erected at Morrisville, Pa., estimated to cost \$100,000, for which bids are being asked on a general contract. T. B. Stockham, Morrisville, and P. L. Fowler, Fitzcharles Building, Trenton, N. J., are associated architects.

W. F. Dalrymple, Sugar Grove, Pa., is planning for the installation of a lathe, drill press and other equipment in the machine department at his automobile service works.

The National Engineering & Machine Co., Sharpsburg, Pa., plans to soon call for bids for the erection of a one-story addition to its plant at Nineteenth Street and the Pennsylvania Railroad, to cost about \$50,000, including equipment. W. H. Caldwell is president.

Manual training equipment will be installed in the new three-story and basement high school to be erected on Third Street, Palmerton, Pa., estimated to cost \$150,000, for which bids will be called on a general contract early in September. W. H. Lee, 32 South Seventeenth Street, Philadelphia, is architect.

The Superior Wire Cloth Co., Turnpike, Pa., has work in progress on a new one-story addition, 125 x 150 ft., and will install machinery for considerably increased production.

Schwartz Brothers, Washington Road, Mount Lebanon, Pa., have plans for the construction of a two-story addition to their automobile service and repair building, 53 x 67 ft., and plan for the installation of additional tools.

Manual training equipment will be installed in the two-story senior high school to be erected at Twelfth and Northampton Streets, Easton, Pa., estimated to cost \$1,000,000, for which work will soon be commenced. W. M. Michler, Drake Building, is architect.

## The Pacific Coast

SAN FRANCISCO, Aug. 28.

A POWER house will be erected at the new plant of the Western Cordage Co., Orange, Tex., on site recently acquired on West Palm Avenue, fronting on the line of the Sante Fe Railroad, to be 130 x 660 ft., estimated to cost \$125,000.

The Pacific Gas & Electric Co., 445 Sutter Street, San Francisco, is planning for the erection of an addition to its machine shop and truck repair works at Davis, Cal., estimated to cost \$40,000.

The Standard Sanitary Mfg. Co., Bessemer Building, Pittsburgh, and San Francisco, manufacturer of sanitary enameled iron products, will soon take bids for the erection of a five-story factory branch, 100 x 180 ft., at Ninth and Brannan Streets, San Francisco, to cost about \$90,000. Weeks & Day, 315 Montgomery Street, are architects.

The Utah Power & Light Co., Salt Lake City, Utah, is perfecting plans for the construction of a new power plant in the vicinity of Soda Springs, Idaho, with initial capacity of 20,000 hp., estimated to cost \$2,500,000, including steel tower transmission system.

The General Electric Co., Seattle, Wash., has awarded a general contract to the Austin Co., for the erection of a one-story machine and repair shop at its local branch, 30 x 120 ft.

Work will commence on a new vocational and manual arts building at the Union High School, Huntington Park, near Los Angeles, to cost about \$100,000. Alfred W. Rea and Charles E. Garstang, 905 Savings & Trust Building, Los Angeles, are associated architects.

The Los Angeles Gas & Electric Co., South Hill Street, Los Angeles, is disposing of a bond issue of \$4,000,000, a portion of the proceeds to be used for extensions and improvements.

The Sacramento Pipe Works, Seventh and R Streets, Sacramento, Cal., plans for the installation of an electric traveling crane in its proposed one-story addition, 100 x 150 ft., to cost about \$50,000.

Work is under way on a one-story manual training building at the Edison school, Long Beach, Cal., estimated to cost \$28,000, and arrangements for the equipment installation will soon be made. W. Horace Austin, 222 First National Bank Building, is architect.

Albert Anderson, Grants Pass, Ore., and associates, are perfecting plans for the construction of a new hydroelectric power plant on the Coquille River, to develop a total of 13,000 hp. It is estimated to cost \$350,000. Application has been made to the state engineer for permission. It is proposed to organize a company to carry out the project.

## Baltimore

BALTIMORE, Aug. 28.

PROPERTY totaling about 230 acres of land at East St. Louis, Ill., has been purchased by the Baltimore & Ohio Railroad Co., Baltimore and Charles Streets, Baltimore, as a site for the construction of new repair shops for locomotive and car work, engine terminal, storage and classification yards, estimated to cost \$1,750,000, with machinery.

The Virginia-Western Power Co., Clifton Forge, Va., is arranging for an increase in capital from \$4,000,000 to \$10,000,000, a portion of the proceeds to be used for extensions in power plants and systems, including the installation of additional machinery. The company recently acquired the Riverside Light & Power Co., and the Charlottesville & Albemarle Railway Co., and affiliated properties.

The Crown Mining & Mfg. Co., P. O. Box 1751, Atlanta, Ga., recently organized with a capital of \$1,000,000, and headquarters at Dahlonega, Ga., is planning for the operation of metal properties and is interested in receiving information regarding mining machinery, power plant and electrical, transportation equipment, etc.

Lester F. Hobbs, Inc., Norfolk, Va., has inquiries out for a steam shovel, Erie or Marion type, with  $\frac{3}{4}$ -yd. capacity bucket, mounted on crawler, with extra boom.

The Bureau of Accounts and Supplies, Navy Department, Washington, D. C., will receive bids until Sept. 4, for 27 electric power circuit breakers, for use at the Portsmouth, N. H., navy yard, schedule 1235.

The Mutual Light Co., Harrisonburg, Va., recently organized, is planning for the installation of a power plant and system for local light and power service. Samuel H. Callender is president, and N. E. Bowman, secretary.

John W. Wood, Linden, Va., has inquiries out for a stationary steam engine, about 4 hp., with auxiliary equipment.

The Central of Georgia Power Co., Atlanta, Ga., has plans for extensions in its main hydroelectric generating plant to increase the capacity to 21,000 hp., estimated to cost \$4,000,000, with machinery and steel tower transmission line.

The Longborough Development Co., 234 Southern Building, Washington, D. C., has tentative plans for the construction of a new industrial terminal and plant in the West Washington district, consisting of a number of plant and warehouse structures, power house, loading machinery, traveling cranes, etc., estimated to cost \$10,000,000. R. F. Beresford, Southern Building, is architect. A. E. Walker is president.

The Delaware Steel Products Co., New Castle, Del., recently organized by Professor M. Boyd, metallurgist, and associates, has acquired a tract of land adjoining the plant of the Deemer Steel Casting Co., lately reorganized and interested in the new company, for the erection of a plant for the production of alloy materials, steel products, etc. Plans will be prepared at an early date. Seldon S. Deemer, formerly president and general manager of the Deemer company, is understood to be connected with the new company.

A. Carver, Rougemont, N. C., has inquiries out for water-wheels, generator and auxiliary equipment for a local hydroelectric power plant.

The Leonhardt Wagon Mfg. Co., 417 East Saratoga Street, Baltimore, will soon take bids for the erection of a new one-story plant at Eighth and O'Donnell Streets, 60 x 250 ft., estimated to cost \$90,000, to be equipped for the manufacturer of wagons and parts. J. Lester Barr, 202 North Calvert Street, is engineer. E. M. Leonhardt heads the company.

The Rondo Chair Co., Rondo, N. C., is planning for the purchase of a single spindle boring machine, saddle seat machine, self-feed rip saw, dowel machine and other equipment, for installation in its local plant.

The Waynesville Veteran's Bureau School, Waynesville, N. C., is planning for the erection of a one-story mechanical and industrial shop, 48 x 112 ft., in connection with a number of other structures, for which plans are being completed.

A vocational shop building, 106 x 112 ft., will be erected at the new three-story high school for boys to be located at Macon, Ga., with machine shop, welding shop and other departments, estimated to cost \$400,000, for which plans will soon be completed. Curran R. Ellis, Macon, and G. Lloyd Preacher, Augusta, Ga., are associated architects.

The Board of Water Commissioners, Macon, Ga., is planning for the installation of electrically-operated pumping machinery at its proposed new 10,000,000 gal. station for the municipal waterworks on the River Road.

The Miller Engineering Corporation, Norfolk, Va., has preliminary plans for the erection of a new foundry and plant in the Sewell's Island section, for the manufacture of radiators and other kindred equipment, estimated to cost \$200,000, with machinery.

The International Engineering & Construction Co., Baltimore, is perfecting plans for the erection of a new mechanical works on local site, estimated to cost \$200,000, with equipment.

The General Purchasing Officer, Panama Canal, Washington, D. C., will take bids until Sept. 4, for 19 planer jacks; 3,000 ft. plow steel cable; 500 steel machine bolts; 15 sets of storage batteries; 48 tackle blocks, and other mechanical equipment for canal zone service, circular 1553.

The Bakersville Roller Mills, Inc., Bakersville, N. C., is considering the construction of a one-story ice-manufacturing plant, for which a list of equipment will be arranged at an early date.

C. W. Bryan & Son, Oxford, N. C., have inquiries out for an oil-operated engine, about 50 hp., with auxiliary equipment.

The Mica Corporation, Martinsville, Va., operating properties in Franklin and Henry Counties, Va., has tentative plans for the erection of a local plant for the manufacture of mica specialties, with installation to include forming and molding machinery, power equipment and transmission apparatus. J. T. Mulhoney is president.

The Peerless Truck & Motor Corporation, Richmond, Va., with plant at Cleveland, represented by Thomas B. Gay, Richmond attorney, has voted to purchase the Collins Motor Car Co. General expansion and consolidation plans are being arranged. R. H. Collins has been elected president of the Peerless company.

The North Georgia Marble Products Co., Whitestone, Ga., has inquiries out for steam-operated hoisting machinery, 25 to 30 hp., 26 to 40 in. drum diameter.

The Common Council, Greenville, S. C., plans for the installation of electrically-operated pumping machinery in



connection with proposed additions to the municipal water-works, to cost about \$300,000. Bond have been voted. The Water Commission is in charge.

J. C. Steele & Sons, Statesville, N. C., manufacturers of clay-working machinery, have inquiries out for a milling machine, large size, new or used in good condition.

## Pittsburgh

PITTSBURGH, Aug. 27.

THE machine tool market here reflects the improved sentiment which is appearing in business in general. No important lists have appeared lately, but the trade is working diligently and with much confidence on those now up, chief of which are the tools for several shops of the Pennsylvania Railroad, Central Region. A good many orders for individual tools have been closed this month and with some of the trade August has been the best month in point of sales of any since the fore part of the year. The crane market does not show much life with respect to actual orders, but prospective business is gaining and makers of steel mills have something to look ahead to in the new 9-stand bar mill on which the Jones & Laughlin Steel Corporation has taken prices for estimating purposes and the mills for the new cold-rolled strip mill to be started at Warren, Ohio, by C. G. Thomas and associates, and for which Barton R. Shover, Oliver Building, Pittsburgh, is consulting engineer. These mills probably will be placed this week.

Plans are being drawn for the erection of a new one-story addition to the plant of the Pittsburgh Malleable Iron Co., Thirty-fourth and Smallman Streets, Pittsburgh, to cost about \$150,000, including equipment. Peter Dietz, Lyceum Building, is engineer.

The Lewistown Motor Co., Lewistown, Pa., will install a machine shop in its proposed new service and repair building to be erected on South Main Street, to cost in excess of \$60,000. The structure will replace a former works destroyed by fire a number of months ago.

The American Steel Band Co., Pittsburgh, has acquired property adjoining its plant on Nixon Street for a consideration of about \$45,000, for proposed enlargements.

The Carnegie Steel Co., Pittsburgh, has work in progress on additions to its power plant at its Munhall, Pa., works, to include the installation of engines, boilers and auxiliary equipment.

The Thacker Coal & Coke Co., Williamson, W. Va., with headquarters at Cincinnati, T. E. Houston, president, has arranged an appropriation of about \$500,000 for extensions and improvements in its local coal-mining plant, to include the construction of a new tippie, hoisting and conveying machinery, electric power and other mechanical equipment.

A. S. Burger, Beechbottom, W. Va., operating local coal properties, is planning for the organization of a company to construct and operate a new tippie, estimated to cost \$75,000, with the installation of electric power and mechanical equipment at the present works.

The Venango Mfg. Co., Franklin, Pa., manufacturer of castings, mechanical equipment, etc., has commenced the erection of a new addition to provide for an increase of about 15,000 sq. ft. floor area. The company is completing a one-story extension, 50 x 100 ft., for pattern service.

F. Hodgson, care of H. Westenhaser, 712 South Virginia Street, Martinsburg, W. Va., architect, has plans in preparation for the construction of a three-story automobile service and repair building on King Street, 75 x 80 ft., to cost about \$75,000. A machine shop will be installed.

The Deep Run Coal Co., Cumberland, Md., has authorized plans for the construction of a one-story machine shop at its properties in the Elk Garden district, near Elkins, W. Va., in connection with other extensions to cost about \$300,000. A tippie and power house will also be built. Benjamin Robinson, Sr., Frostburg, Md., is engineer.

The Clarion River Power Co., Johnstown, Pa., is perfecting plans for the construction of a hydroelectric generating plant at the Piney dam, now in course of building. The company will also construct other similar power plants in this same section, with total investment to exceed \$1,000,000.

M. Friedman, Uniontown, Pa., plans for the installation of a machine shop in the two-story automobile service and repair building, 125 x 150 ft., to be erected at Fayette and Wilson Streets, estimated to cost \$45,000.

The State Board of Control, Charlestown, W. Va., will take bids on a general contract until Sept. 28 for the construction of five new industrial and vocational school buildings at Prontytown, W. Va., with main structure, three-story,

70 x 150 ft., estimated to cost \$100,000. R. A. Gillis, American Building, Fairmont, W. Va., is architect.

A machine shop will be installed in the three-story and basement service building, 100 x 120 ft., to be erected on Fairmont Avenue, Fairmont, W. Va., by the Central Auto Co., 419 Hull Avenue, estimated to cost \$55,000. C. Wilson heads the company.

## Milwaukee

MILWAUKEE, Aug. 27.

WHILE the amount of business passing in the machine-tool trade remains limited as to volume, inquiry is increasingly active and the number of orders is growing. August bookings compared favorably with those made in June and July, and in most instances were reported above those in August last year. Operations of manufacturers of milling machines are well maintained despite the absence of large-lot orders. Activity of machine-shops has increased during the past two weeks and the outlook for an improved industrial demand for tools is correspondingly better.

Formal transfer of the complete plant of the bankrupt United States Gear Shift Co., Eau Claire, Wis., to B. R. L'Hommedieu and associates of Madison, Wis., has been accomplished and the new owners intend to reinstate operations shortly after Sept. 1.

The Perfection Table Slide Co., Watertown, Wis., let the general contract to Omar L. Gaston, local, for erecting a brick and mill manufacturing building, two stories, 75 x 150 ft., estimated to cost \$80,000. Inquiry is being made for miscellaneous machinery, including cut-off saws, jointers, facers, groovers, etc., all with individual motors. William C. Schultz, 603 Clyman Street, is president and general manager.

The International Harvester Co., 217 Oregon Street, Milwaukee, will close bids Aug. 30 for the erection of a four-story concrete and brick building, 100 x 150 ft., at Reed and South Water Streets, to be equipped as an assembling shop and warehouse. It will cost about \$160,000 complete. W. J. Jens is manager.

The Milwaukee Board of Industrial Education, Archie C. Muehl, secretary, is asking bids until Sept. 4 for the construction of a foundry charging floor in the new Milwaukee Vocational School at Seventh and Prairie Streets, to provide for the installation of a  $\frac{1}{2}$  to  $\frac{3}{4}$ -ton electric furnace designed for class instruction. Bids for the furnace and auxiliaries will be taken later.

The Carbon Engineering Co., Milwaukee, has been incorporated with a capital stock of \$20,000 to engage in the manufacture of carbon brushes and similar specialties for the electrical industry. The principals are John Hurum, G. F. Helwig and Walter O. Helwig, Eighth and Morgan Avenues. A small shop will be equipped at this location at once.

The Riley-Fredericks Co., 209 Grand Avenue, Milwaukee, has taken the contract to furnish and install the coal and ash handling system in a \$30,000 steam generating plant addition for the Forsyth Leather Co., town of Wauwatosa, Milwaukee county. The engineers are Cahill & Douglas, 217 West Water Street, Milwaukee.

The Peterson-Egeland Mfg. Co., Sturgeon Bay, Wis., has been incorporated with \$25,000 capital stock to manufacture a patented steel motor stand for Ford service stations and general automotive repairshops, designed by George Peterson, who with Dr. G. R. Egeland and H. L. Peterson, are the incorporators. The former Johnson machine shop has been leased and is being remodeled for production and assembling.

The Helm Cut Stone Co., 578 Locust Street, Appleton, Wis., will erect a new plant costing about \$45,000 at Outagamie Street and College Avenue, on the "Soo Line" tracks. It will be 50 x 100 ft., two stories, and will require complete new machinery, including one 5-ton and one 2-ton hand operated crane, several smaller chain hoists, carborundum saws, polishing machines and electric motors.

The Safety Highway Engineering Co., Milwaukee, recently incorporated with \$100,000 capital stock to manufacture patented traffic regulating devices, highway signs, etc., has perfected its organization by electing these officers: President, Bernard Minn, 1409 Fifteenth Street; vice-president, H. C. Hoppmann; secretary-treasurer, W. A. Richter. A suitable building will be leased and equipped for finishing and assembling cast and stamped parts to be purchased for the present.

William Hyink & Sons Co., 727 North Water Street, Milwaukee, let contracts Aug. 22 for the erection of a new machine shop, 60 x 127 ft., part two stories, at Ogden Avenue and Market Street, designed by Frank Howend, architect, 65 Wisconsin Street, and estimated to cost \$45,000. Miscellaneous supplemental equipment is being purchased.

The Charles W. Gindele Co., Chicago, has taken the general contract for improvements costing \$500,000 in the Monona yards of the Chicago & Northwestern Railroad Co. at Madison, Wis. Construction work embraces a 24-stall roundhouse, heater room and washroom; power house; machine shop; car repair and workshop and store building; ice house; sand warehouse, and several smaller buildings. The contract specifies completion of the project by Jan. 1, 1924.

Mead & Seastone, consulting engineers, Madison, Wis., are taking bids until Sept. 15 for switchboards, supervisory controls, power transformers and miscellaneous auxiliaries for the new \$600,000 hydroelectric generating plant being built at Caldron Falls, Peshtigo River, near Ellis Junction, Wis., by the North East Power Co., subsidiary of the Wisconsin Public Service Co., 559 Marshall Street, Milwaukee.

The stockholders' reorganization committee, Dr. E. W. Timm, 922 Third Street, Milwaukee, chairman, is the successful bidder for the entire assets of the bankrupt Winther Motors, Inc., Kenosha, Wis., at \$130,000. The only other bidder for the property in bulk was the E. L. Essley Machinery Co., 78 West Water Street, Milwaukee, at \$127,500. The property inventoried at more than \$250,000. The public sale was held Aug. 16 but no bulk bids appeared and at a meeting of creditors on Aug. 23 the stockholders' committee and the Essley company entered tenders.

Herbert F. Johnson, trustee of the bankrupt estate of the Mitchell Motors Co., Inc., Racine, Wis., has issued a circular giving notice that he will receive bids for the purchase of the entire property at private sale up to and including Sept. 1. If no bids are received, the assets will be offered for sale at public auction on Sept. 12. The plant consists of 35.46 acres, with nine main buildings containing 604,800 sq. ft., and it is stated that a formal appraisal made Oct. 7, 1922, revealed a going value of \$3,840,000, exclusive of materials and supplies.

## Detroit

DETROIT, Aug. 28.

**S**UPERSTRUCTURE work will commence on a new one-story addition, 80 x 200 ft., at the plant of the Mason Motor Truck Co., Fenton Road, Flint, Mich., estimated to cost \$25,000, for which a general contract recently was let to the H. G. Christman Co., Lansing, Mich. M. C. Day is secretary.

The Michigan Stamping Co., 11,631 Mack Avenue, Detroit, has filed plans for the erection of a one-story addition, estimated to cost \$25,000. Albert Kahn, 1000 Marquette Building, is architect.

A. N. Haskell, 1045 Hibbard Avenue, Detroit, has inquiries out for a lathe of Le Blond type and drill grinder.

The Hupp Motor Car Co., Hamilton Street, Detroit, has awarded a general contract to the Everitt-Winters Co., Book Building, for the erection of a new one-story addition, for which ground will be broken at once.

The Trippensee Closed Body Corporation, 5685 Twelfth Street, Detroit, will commence the erection of a one-story addition to its automobile body manufacturing plant. Plans have been filed.

The Detroit Lubricator Co., 5938 Trumbull Street, Detroit, manufacturer of lubricating devices and equipment, will soon break ground for the erection of a new six-story addition, 108 x 140 ft., estimated to cost about \$330,000, for which plans have been drawn by Smith, Hinchman & Grylls, 800 Marquette Building. Work is now in progress on a two-story top extension to the present four-story plant, 90 x 125 ft., to cost approximately \$65,000, exclusive of equipment. Herbert Lord is second vice-president.

The Ford Motor Co., Highland Park, Mich., is perfecting plans for the erection of its proposed assembling plant at Norfolk, Va., on site recently acquired at the junction of Virginian Railway and the eastern branch of the Elizabeth River. It will consist of two main assembling units, each five story, 350 x 750 ft., with capacity of 300 cars per day. A general operating and storage building, 350 x 500 ft., will also be built. The works will cost in excess of \$500,000, with machinery.

The Richard Brothers Dye Works, Inc., Milwaukee Avenue, near New Orleans Street, Detroit, has awarded a general contract to J. I. Miller and J. A. McGrath, Goebel Building, associated, for the erection of a two-story addition, estimated to cost \$32,000.

Manual training equipment will be installed in the new high school to be erected at Paw Paw, Mich., estimated to cost \$160,000, for which foundations will be commenced at an early date. The Board of Education is in charge.

The Big Rapids Water Power Co., Big Rapids, Mich., is planning for the installation of hydroelectric generating equipment at its power plant, with auxiliary machinery.

Burd & Giffels, Powers Theater Building, Grand Rapids, Mich., are engineers.

In connection with additions now in course of construction at the plant of the Durant Motor Co., Lansing, Mich., it is proposed to install equipment to provide for an increase from 400 to 550 automobiles per day. H. W. Alger is general manager of the plant.

The Fisher Body Corporation, 725 Piquette Street, Detroit, has filed plans for the erection of a new one-story addition to cost about \$25,000, exclusive of equipment.

The Common Council, Ithaca, Mich., plans for the installation of deep-well pumping machinery at the municipal water plant. Burd & Giffels, Powers Theater Building, Grand Rapids, Mich., are engineers.

## Cleveland

CLEVELAND, Aug. 27.

**M**ACHINE tool builders report a decided improvement in the volume of inquiries. While sales for most part are still confined to one or two machines, actual business shows some gain over last month. The new inquiries are coming largely from the automobile field, both from car builders and manufacturers of parts and accessories. Gray & Davis, Inc., Boston, have an inquiry out for 15 to 20 small screw machines and several automatic screw machines. Other inquiries from the automotive field include several for turret lathes up to six machines and for automatic screw machinery in lots of various sizes up to 8 or 10 machines. Other inquiries include one from the Falls Hollow Staybolt Co., Cuyahoga Falls, Ohio, for 30 deep hole drilling machines. Business is fair with machinery houses but most of their orders are for single tools. The order for 18 metal and wood-working machines for the West Technical High School, Cleveland, has been placed, the business being divided among several local dealers. The recently organized Brightman Brothers Co., Columbus, Ohio, which will equip a new plant for the manufacture of shafting and other products, is in the market for machinery equipment. The Universal Crane Co., Elyria, Ohio, has purchased several tools.

The Austin Co., Cleveland, has recently taken the following orders: Four-story plant for Colonial Knitting Mills, Philadelphia; complete paper mill plant for the Columbia River Paper Mill, Vancouver, Wash.; machine shop, 30 x 60 ft., for the Petroleum Iron Works, Sharon, Pa., to be built in Beaumont, Tex.; office building and foundations for warehouse for the American Steel Band Co., Cincinnati; warehouse in Chicago for the Colonial Steel Co., Pittsburgh. The order recently taken by the Austin Co. for the expansion for the plant of the Fisher Body Corporation, Cleveland, will include one building 140 x 300 ft. and another 95 x 600 ft.

The Elyria Iron & Steel Co. and the Columbia Steel Co., Elyria, Ohio, will erect a joint power plant and have organized a new company to erect this plant. This will be known as the Columbia-Elyria Power Co., of which H. B. Wicks of the Elyria Iron & Steel Co. is president. The plant will have sufficient capacity to take care of the power requirements of the two steel companies. The company will select an engineer shortly to prepare plans.

The Universal Crane Co., Elyria, Ohio, is in the process of reorganization, and if present plans are consummated, control of the company and all ownership of common stock will pass to the Thew Automatic Shovel Co., Lorain, Ohio. Already owners of over 50 per cent of the stock have assented to the reorganization.

The S. M. Jones Co., Toledo, Ohio, has purchased the property and plant of the Toledo Car Wheel & Foundry Co. to provide additional room for expansion. The Jones company has recently completed a two-story machine shop, 80 x 200 ft., and a one-story sucker rod plant, 50 x 200 ft.

The Hercules Motor Corp., Canton, Ohio, has been organized to operate the plant of the Hercules Motor Co., which was recently purchased from the receiver by E. A. Langenbach. Mr. Langenbach is president; H. H. Timken, chairman of the board of directors; Charles Balough, vice-president, and H. P. Blake, secretary.

The Acme Cultivator Co., Salem, Ohio, has concluded a deal for the removal of its plant to Leetonia, Ohio.

The Lorain Stucco Steel Co., Lorain, Ohio, will establish a plant for the manufacture of metal lath and channels for stucco buildings. Among those interested are G. Fraser, Ravenna, Ohio, and H. Reynard, Cleveland.

Harry J. and Charles J. Dockray have opened a new foundry in Zanesville, Ohio.

The Defiance Automatic Screw Co., Defiance, Ohio, has increased its capital stock from \$15,000 to \$50,000.



## Buffalo

BUFFALO, Aug. 28.

**PURCHASE** has been made by the American Radiator Co., Buffalo, with headquarters at Chicago, of the local plant of the Curtiss Aeroplane Co., Elmwood Avenue, for a consideration of \$755,000. It consists of 79 acres of land, with buildings aggregating 1,300,000 sq. ft. of floor area. The new owner will equip and occupy a portion of the property for a new works for the manufacture of heating equipment and purposes to lease the remainder to outside manufacturing interests. A subsidiary to be known as the American Terminal Warehouse Corporation, capitalized at \$1,000,000, has been organized to take over and operate the portion of the property to be occupied by other companies.

The new plant of the Houde Engineering Corporation, 1392 West Avenue, Buffalo, to be located on site recently purchased on Northland Avenue, will be used for the manufacture of shock absorbers for automotive service. It will be one-story, estimated to cost \$75,000.

The Anderson Motor Sales Co., Third Street and Prendergast Avenue, Jamestown, N. Y., is planning for the purchase of a lathe, drill press and other equipment.

Excavations are under way for the erection of a new one-story plant, 60 x 200 ft., for the Buffington Co., Inc., 342 Madison Avenue, New York, manufacturer of metal furniture, etc., at Oswego, N. Y., estimated to cost \$50,000.

Bids will be received by the Commissioner of Public Works, Municipal Building, Buffalo, until Sept. 4, for 150 flanged gate valves for use at the city filter plant, consisting of thirty 30-in., thirty 24-in., sixty 20-in., and thirty 10-in. valves, as per specifications on file.

H. Weinstein, 90 Monroe Street, Buffalo, is planning for the installation of a lathe, cylinder grinder and other equipment at his automobile service and repair building, 421 Niagara Street.

A one-story machine shop will be erected by the Superintendent of Public Works, Capitol Building, Albany, N. Y., in connection with a new grain elevator on the Barge Canal, River Street, Oswego, N. Y., to cost in excess of \$400,000.

Manual training equipment will be installed in the new three-story high school to be erected at Hamburg, N. Y., estimated to cost \$350,000, for which revised plans are being prepared. Frank Spangenberg, 250 Delaware Avenue, Buffalo, is architect.

A lathe, drill press and other equipment will be installed in the machine shop at the automobile service works to be established by F. J. Lewis, 1630 Bailey Avenue, Buffalo.

The Niagara Steel & Wire Co., Buffalo, has acquired the plant of the Pennsylvania Steel & Wire Co., Stroudsburg, Pa., recently secured at a receiver's sale by Henry S. Myer. The works, previously, were operated under the name of the Monroe Steel & Wire Co. The new owner plans to remodel and improve the property for a new branch plant.

The Hudson-Oliver Motor Co., Buffalo, has leased property at Main and Northampton Streets, for the establishment of a new service and repair works.

## Cincinnati

CINCINNATI, Aug. 27.

**M**ACHINE tool orders continue to be booked in fair volume, but it is noticeable that most of the orders being placed are for single tools. There has been some clearing up of outstanding quotations, and on the whole, manufacturers are somewhat more optimistic for the future. Inquiry is still good, but large lists are conspicuously absent. The largest order reported was for eight engine lathes from the Brazilian Navy Department. Some outstanding railroad inquiries are expected to be closed this week, and it would not be surprising if several large lists were sent out by a number of roads about Sept. 1. Cincinnati machine tool manufacturers are running at about the same rate as maintained for some months past.

The assembling plant of the Chevrolet Motor Co., recently completed at Norwood, Ohio, is now in production, operations having commenced last week. The plant will have a capacity of 300 cars per day. Automobile bodies will be built in a part of the plant by the Fisher Body Corporation. Full operation is expected to be reached shortly after Labor Day.

The Gates Radio Co., Cincinnati, has been incorporated with a capitalization of \$1,000,000 to manufacture radio equipment. The company is now looking for a manufacturing plant in the downtown section of the city, but eventually will build a plant in one of the suburbs. The company will buy some machine tool equipment. L. J. Ainsworth, 607 Dixie Terminal Building, is president.

The Dayton Pump & Mfg. Co., Dayton, Ohio, manufacturer of water systems and gasoline pumps and storage tanks, has awarded contract for an extension to its plant. It is expected the addition will be ready for occupancy in 60 days.

The Superior Gas Engine Co., Springfield, Ohio, has awarded contract to the Austin Co., for an addition to its foundry building, 80 x 110 ft. The company is also contemplating the erection of a large warehouse.

The Thomas Mfg. Co., Springfield, Ohio, will again manufacture lawn mowers, discontinued a number of years ago, when the company standardized on grain drills and haying machinery. Production of lawn mowers will start about Oct. 1.

The Standard Sanitary Mfg. Co., Louisville, Ky., has awarded contract for a combined office, recreation and storage building, to cost approximately \$60,000.

A plan is being formulated to lift the receivership of the Star Mfg. Co., New Lexington, Ohio, mine car manufacturer. The company was placed in receiver's hands in 1921, but lately has been operated profitably. Paul Gordon, New Lexington, is receiver.

The City of Newport, Ky., has awarded contract to the J. N. Chester Engineering Co., Pittsburgh, for the installation of a modern water supply system. The system will entail an expenditure of \$500,000. Considerable pumping equipment will be required, as well as water pipe, and reinforcing bars for a storage reservoir. Joseph Herman is mayor of Newport.

The new plant of the Mengel Body Co., Louisville, Ky., will commence operations about Sept. 1.

## Chicago

CHICAGO, Aug. 27.

**T**HE volume of sales shows no change for the better, but inquiries for machine tools are more numerous, and dealers hope for a more active market in September. At the same time, prospective buyers are showing renewed interest in inquiries which have lain dormant throughout the summer months. In a few instances, in fact, users have hastened to add to their equipment as quickly as possible, indicating that they have taken unexpected business for the execution of which their existing facilities would not suffice. A cutter and tool manufacturer placed a telephone order for three 14-in. tool-room lathes for delivery before Sept. 1. There continues to be a moderate activity in punch presses, five medium-sized presses having been purchased by a local maker of office appliances. Dealers also report scattered sales of used machinery, among them several single orders for second-hand turret lathes. No further railroad buying is reported, but the Pullman Co., Chicago, has put out an inquiry for the Pullman Railroad, including the following machines, all of which are to be motor driven:

- One 30-in. x 12-ft. geared head engine lathe.
- One 4-ft. high duty plain radial drill.
- One 12-in. x 6-ft. geared head engine lathe.
- One 36 x 36-in. x 12-ft. medium duty planer with two heads on cross rail.
- One 2-in. bolt cutter.

The Whiting Corporation, Harvey, Ill., has booked the following orders for foundry equipment: Four special 72-in. cupolas for the Studebaker Corporation, South Bend, Ind.; one 48-in. cupola for the Jeffrey Mfg. Co., Columbus, Ohio; one 24 x 36-in., one 26 x 48-in. and a 42 x 72-in. tumbling barrel for the Niagara Machine & Tool Works, Buffalo, N. Y.

The plant and equipment of the bankrupt Mitchell Motors Co., Racine, Wis., will be sold at auction Sept. 12. Recent sales of machine tools at both public and private offerings have brought out very low prices. In extreme cases machines have been sold at 10 per cent of the purchase price.

Contracts have been awarded for the construction of the first unit of the Ford Motor Co. plant at St. Paul, Minn. In addition to the manufacturing plant, which will contain 1,000,000 sq. ft. of floor space, a large hydro-electric power plant is to be built. It is intended to have the factory in operation by the spring of 1924.

Elmer Mattern, secretary-treasurer Wabash Foundry Co., Wabash, Ind., has been appointed temporary receiver pending a hearing on a petition to make the receivership permanent.

Work is under way on the construction of a stove manufacturing plant, 70 x 302 ft., for the Leonard Range Co., at Washington, Ind. It is expected that the new company will be able to start operations by Jan. 1.

The Crown Rheostat & Supply Co., 35 South Des Plaines Street, Chicago, is receiving bids through an architect on a two-story factory, 50 x 72 ft., 1908-1914 Parker Avenue, to cost \$28,000.

The Ajax Tank & Tower Co., 1407 West Thirty-seventh Street, Chicago, has leased from the trustees of the Central Manufacturing District, 10,000 sq. ft. in West Thirty-eighth Street opposite to the C. G. Spring Co. for 15 years with option to purchase. A one-story plant to contain 4500 sq. ft. is now being constructed on the property and will be occupied on completion about Oct. 1, for the manufacture and storage of sprinkler and tower tanks.

The Chicago Steel & Wire Co., 103rd Street and Torrence Avenue, Chicago, is having plans prepared by L. G. Hallberg & Co., 116 South Michigan Avenue, for a one-story plant addition, 110 x 390 ft., to cost \$80,000.

The Washington Parlor Furniture Co., 1304 North Wood Street, Chicago, is taking bids through David S. Klafner, 64 West Randolph Street, on a two-story factory, 75 x 125 ft., 1312-22 Wicker Park Avenue, to cost \$75,000.

The Chicago Window & Door Screen Co., 5118 South State Street, Chicago, is receiving bids on a two-story factory addition, 57 x 112 ft., to cost \$45,000.

The Federal Electric Co., 31 West Eighty-seventh Street, Chicago, has let a contract for a one-story plant addition, 24 x 58 ft., to cost \$5,000.

The Blaska Mfg. Co., 4825 South Rockwell Street, Chicago, has placed a contract for a one-story tin shop, 75 x 77 ft., 4132-36 Belmont Avenue, to cost \$14,000.

The American Plywood Wheel Co. has purchased a site in Howell, Mich., for a plant for the manufacture of disk automobile wheels. Ground will be broken for the building soon.

The Moline Iron Co., Moline, Ill., will build additions to cost \$17,000. Improvements at its plant at Second Street and First Avenue include a three-story brick pattern vault, 24 x 45 ft., and a one-story core room, 50 x 75 ft., with a battery of core ovens. At the Thirty-sixth Street plant a two-story pattern vault, 40 x 54 ft., and a one-story core room, 40 x 50 ft., with a battery of core ovens, will be constructed.

The Auto Specialties Mfg. Co. has started the construction of an addition to its plant at St. Joseph, Mich., to cost \$200,000. The present floor space will be increased 50,000 sq. ft. The new building will be in the form of an "L" and will be devoted to the manufacture of malleable castings.

A machine shop will be installed in the one and two-story and basement automobile service building, 50 x 250 ft., to be erected at Wilcox and West Adams Streets, Chicago, by the Chicago Motor Bus Co., 124 Rosemont Avenue, for which excavations are being made, estimated to cost \$400,000. J. A. Ritchie is president.

The Western Fruit Express Co., St. Paul, Minn., has selected a local site, fronting on the line of the Great Northern Railroad Co., for the erection of a new central car repair shop, estimated to cost \$150,000, with machinery.

A one-story power house will be erected by the Board of Trustees, Macalester College, Grand and Macalester Avenues, St. Paul, Minn., for service at the institution, for which bids will soon be asked. W. M. Ingeman, 637 Endicott Building, is architect.

The Rockville Granite Co., Cold Spring Minn., has inquiries out for an electric traveling crane, 3 to 10-ton capacity, with span 40 ft. or over, provided with 220-volt d.c. motors.

The Public Service Co. of Colorado, has been organized as an interest of Henry L. Doherty & Co., 60 Wall Street, New York, operating the Cities Service Co. and other electric power utilities. It will be capitalized with \$3,500,000 preferred stock, and \$15,000,000 common stock. The new company will take over the Denver Gas & Electric Co., and the Western Light & Power Co., Boulder, Colo., and has plans for extensions and improvements, to include a new steam-turbo generating plant at Valmont, Colo., additional equipment in present stations, and the construction of steel tower transmission lines.

Manual training equipment will be installed in the new two-story high school to be erected at Glencoe, Minn., estimated to cost \$225,000, for which bids will be asked on a general contract in the near future. Stebbins & Haxby, Auditorium Building, Minneapolis, Minn., are architects.

The D. O. James Mfg. Co., 1120 West Monroe Street, Chicago, manufacturer of cut gears, etc., will soon commence the erection of a three-story addition, estimated to cost \$55,000. Ronneberg, Pierce & Hauber, 10 South La Salle Street, are architects.

A machine shop will be installed in the two-story Ford automobile service building, 75 x 220 ft., to be erected on West Main Street, Danville, Ill., by the Barker Motor Co.,

222 West Main Street, estimated to cost \$75,000. Lewis & Dougherty, Adams Building, are architects.

Manual training equipment will be installed in the new two-story and basement high school to be erected at Sheldon, Ill., estimated to cost \$80,000, for which construction will be placed in progress at once. McCoy & Skadden, Temple Building, Danville, Ill., are architects.

## The Gulf States

BIRMINGHAM, ALA., Aug. 27.

**A** NEW electric power company, to be known as the Frisco-Lina Utilities Co., Frisco, Tex., is being organized to take over the local electric plant as well as the power plant at Celina. Extensions and improvements will be made, with plans including the construction of a new central generating plant for service throughout this district. Transmission lines will be constructed. H. E. Blumberg, Dallas, Tex., is president of the new organization.

Thee H. C. Walton Co., Monroe, La., has acquired property near Swartz, La., and plans for the construction of a new gasoline refining plant. A list of equipment to be installed will soon be arranged.

The Southern Glass Co., Bastrop, La., has acquired the local plant of the Ouachita Glass Co., and will take immediate possession. Extensions and improvements are planned, including the installation of additional equipment. The plant will be used for the manufacture of jars, bottles, etc.

The West Texas Utilities Co., Coleman, Tex., is negotiating for the purchase of the municipal electric power plant. Upon acquisition, it is proposed to make extensions, including the installation of additional equipment for service in this section.

A machine shop will be installed in the one-story automobile service building to be erected by the Bradentown Sales Co., Bradentown, Fla., 100 x 200 ft., on Broad Street. A drill press, lathe and other equipment will be installed.

Fire, Aug. 15, destroyed a portion of the power plant and ice-manufacturing plant of the Oakdale Ice & Light Co., Oakdale, Tex., with loss estimated at \$50,000. It is planned to rebuild.

Inquiries are being made by the L. M. Anderson Dental Supply Co., Tampa, Fla., for conveying, digging and other machinery for installation on a tract of Fuller's earth property in this section. Power equipment will also be installed.

The Kansas City Southern Railway Co., Kansas City, Mo., is perfecting plans for the erection of a new one-story car repair shop at its works at Shreveport, La., to cost about \$160,000, with equipment. The structure will replace a building recently destroyed by fire.

C. L. Archer, Corinth, Miss., is arranging for the organization of a company with capital of \$40,000, to construct and operate a local plant for the manufacture of brick, tile, etc. A list of equipment to be installed, including presses, conveying apparatus and electric power equipment will be prepared at an early date.

A locomotive crane will be installed in the new plant to be constructed by the Texas Creosoting Co., Orange, Tex., recently organized with capital of \$450,000. High pressure pumping machinery, conveying equipment and other mechanical equipment will also be purchased. E. B. Shipley, 1053 Century Building, Pittsburgh, consulting engineer, will be in charge of machinery proposals.

Fire, Aug. 17, destroyed a portion of the oil storage and distributing plant of the Humble Oil & Refining Co., Dallas, Tex., at Webster, near Houston, Tex., with loss estimated at \$150,000. It will be rebuilt.

The Texas Power & Light Co., Dallas, Tex., will commence the erection of a new power house on Tuttle Street, estimated to cost \$65,000.

The Common Council, Dothan, Ala., has plans for the construction of a municipal hydroelectric power plant at Chalkers Bluff, near Dothan, with initial output of 3000 hp., estimated to cost \$750,000, with machinery and transmission system. The Ludlow Engineers, Inc., Winston-Salem, N. C., is engineer.

The Hubert F. Young Lumber & Land Co., Birmingham, Ala., is considering the construction of a power house in connection with a new lumber mill at Waterloo, Ala., to cost in excess of \$80,000.

Two mechanical and vocational shops will be installed in the new high school to be erected at Corsicana, Tex., estimated to cost \$235,000, for which ground will be broken at once. Equipment bids will be asked at an early date. William B. Ittner, Board of Education Building, St. Louis, is architect.

A machine shop, with lathe, drill press and other equip-



ment, will be installed in the new one-story automobile service building to be erected on South Alamo Street, San Antonio, Tex., by J. Steves, 509 King William Street, estimated to cost \$55,000, for which work will commence at once.

Manual training equipment will be installed in the new junior high school to be erected at Mirror Lake Drive and Third Avenue, St. Petersburg, Fla., estimated to cost \$160,000, for which ground will soon be broken. The local Board of Education is in charge.

The Common Council, Gibsland, La., will take bids for equipment for the municipal electric lighting plant, including one 100-hp. oil-operated engine; generating apparatus, motors, switchboard, etc. E. T. Archer & Co., Merchants Building, Shreveport, La., are engineers.

## The Central South

ST. LOUIS, Aug. 28.

**T**ENTATIVE plans are being prepared by the Louisville Hydro-Electric Co., Louisville, for the construction of a new hydroelectric generating plant at the Ohio River Falls, near Louisville, with capacity of 75,000 hp., for which a permit has been issued by the Federal Power Commission. It will cost in excess of \$500,000, with equipment and transmission system.

The Crawford Brothers Co., Cimarron, Kan., operating an automobile service works, is planning for the installation of a drill press, lathe, cylinder grinder and other equipment.

The Duncan Machinery Co., P. O. Box 265, Knoxville, Tenn., machinery dealer, has inquiries out for an engine lathe, 10 to 12 ft. between centers, 24 to 30 in. swing, for general repair operations.

The Day-Brite Reflector Co., 222 South Eighth Street, St. Louis, is arranging for the installation of a plant for the manufacture of lighting reflectors, including polishing, buffing and other machinery. O. W. Klingsick is president.

The Sinclair Pipe Line Co., Sinclair Building, Tulsa, Okla., will commence the erection of a one-story machine shop at Wheeling Street and the line of the Santa Fe Railway, 60 x 100 ft., estimated to cost \$25,000. Blair Brothers, 310 Palace Building, are architects.

The Tennessee Hydro-Electric Co., Chattanooga, Tenn., has tentative plans for the construction of a series of hydroelectric generating plants on the Clinch River, totaling 150,000 hp., 130,000 hp., 50,000 hp. and 30,000 hp., respectively, estimated to cost \$6,000,000. Application has been made for permission to the Federal Power Commission.

Manual training equipment will be installed in the new Barstow school, 225 x 470 ft., to be erected at Kansas City, Mo., estimated to cost \$150,000. Smith, Rea & Lovitt, Kansas City, are architects.

M. B. Parker, Chattanooga, Tenn., has inquiries out for electric welding equipment, suitable for locomotive repair work.

Manual training equipment will be installed in the new high school now in course of construction at Oklahoma City, Okla., estimated to cost \$100,000.

The Louisville Gas & Electric Co., Louisville, is planning for extensions and improvements in its power plant on Washington Street, to include the installation of steam power and other machinery to increase the capacity to 120,000 hp., estimated to cost \$500,000.

A machine shop will be installed in the new one-story service building to be erected at 504 Broadway, Nashville, Tenn., by the Chevrolet-Nashville Co., 19 Third Avenue, local representative for the Chevrolet automobile, estimated to cost \$50,000. A. W. Davis is general manager.

E. A. Zweig, 1310 Central Street, Dodge City, Kan., operating an automobile service works, is planning for the installation of a lathe, emery wheel, cylinder grinder and other equipment.

The Bull Creek Coal Co., Inola, Okla., will install electrical and mechanical equipment for mining service at its local properties, including steam shovel, conveying equipment, etc. A. D. Rushmart, Locust Grove, Okla., is general manager, in charge.

The Bryson Novelty Mfg. Co., Fayetteville, Tenn., is in the market for machinery for the manufacture of gasoline gages and kindred products.

Receivers for the Constantin Refining Co., Tulsa, Okla., deny published reports that they contemplate the erection of a new refinery. The company now has two refineries in Oklahoma which have been shut down for the past six months and the receivers say no expansion of any kind is contemplated.

## Indiana

INDIANAPOLIS, Aug. 27.

**A**RRANGEMENTS are being made by the Elgin Motors, Inc., Indianapolis, for the operation of its local plant at Lafayette and Fifteenth Streets, formerly the works of the Federal Motor Car Co., early in the fall. The works comprise three main buildings on a 2½-acre site, and will be given over entirely to the manufacture of automobiles and parts. The company has removed machinery from Chicago to the new location and will install additional equipment as required. Joseph H. McDuffee is president.

Manual training equipment will be installed in the new junior high school to be erected on Fourth Street, Marion, Ind., estimated to cost \$150,000, for which bids will soon be asked on a general contract. W. C. Findt, Board of Education, is architect.

The Board of Trustees, Indiana State Normal School, Muncie, Ind., is perfecting plans for the construction of a one-story power house at the institution, to cost about \$60,000. Kibele & Garrard, 335 Johnson Building, are architects.

The Kramer Mfg. Co., 602 South New Jersey Street, Indianapolis, manufacturer of furniture, has plans for the erection of a new plant at 233-55 South La Salle Street, comprising main one-story works, 70 x 240 ft.; power house, 28 x 48 ft.; three-story office and other miscellaneous structures, estimated to cost \$250,000, with machinery. All tools will be motor-driven. For the first few months the company will use central station electric service, and will then install generating and auxiliary machinery for individual electric power. Edward F. Kramer is president and L. B. Mosiman, secretary-treasurer.

Gray Brothers, Petersburg, Ind., operating coal properties, are planning for the installation of electric power and mechanical equipment, including stripping machines, etc., on property recently acquired in southern Monroe Township.

The Common Council, Bluffton, Ind., is considering the installation of electrically operated pumping machinery in connection with extensions and improvements in the municipal waterworks. J. W. Moore, 835 Indiana Pythian Building, is engineer.

The Indiana Rolling Mill, Newcastle, Ind., is planning for the installation of a shear, gate type, with capacity for handling material up to 12 ft. long.

The Crawford & McCrimmon Foundry & Machine Co., Brazil, Ind., has been reorganized and has plans for expansion to develop a line of mining machinery and parts. The new company is headed by Hugh Stevens, president of the First National Bank of Brazil; J. B. Mershon, Brazil, and Charles G. Huestis, Greencastle, Ind. The last noted will act as chief engineer.

The Knox & Sullivan County Light & Power Co., Sullivan, Ind., has plans for the installation of a plant and system at Merom, Ind.

Manual training equipment will be installed in the new two-story and basement high school addition to be erected at Alexandria, Ind., estimated to cost about \$85,000, for which bids will soon be asked on a general contract. R. Watkins, Farmers' Trust Building, Anderson, Ind., is architect.

Plans are being arranged for the early erection of an addition to the municipal light and power, and waterworks plants at Columbia City, Ind., to cost about \$30,000. The installation will include boilers, stokers, superheaters and other equipment. C. Brossman, 1503 Merchants' Bank Building, Indianapolis, is consulting engineer.

The Board of Works, Logansport, Ind., is considering the construction of a one-story service and repair building for municipal motor trucks and cars. It is purposed to install a machine shop. D. Kinneman, City Hall, is city clerk.

## Canada

TORONTO, ONT., Aug. 28.

**T**HE demand for machinery and machine tools is holding well up to that of the past several weeks. The automotive and electrical trades are furnishing the greater part of the present demand, while at the same time a good demand has recently developed for equipment for waterworks and sewage plants. Machinery dealers and builders are looking to the Canadian mining fields as an outlet for large quantities of machinery and it is expected that within the next couple of months considerable buying will develop from this source. The demand for machine tools on replacement account continues active, while some good sales have recently been announced on new works account.

The Toronto Transportation Commission has just closed the following business for equipment for the new car shops

now under construction in Toronto: 2 oil furnaces awarded to Alfred Herbert, Ltd.; 14 1½-ton electric hoists awarded to Lyman Tube & Supply Co.; 1 one-ton hoist awarded to Rudel-Belnap Machinery Co.; and in addition an order for several Universal electric drills was awarded to Charles S. Wright.

C. Alfred Maguire, Chairman of the Board of Control, Toronto, Ont., will receive bids until Sept. 4, for the supply of one 3-motor electric traveling crane, hoist and appurtenances. Specifications and form of tender may be had from Room 12 City Hall.

Fred R. James, Town Engineer, Walkerton, Ont., will receive bids up to Sept. 5, for the supply of 2 gasoline engines and pump, 1000 gal. per min.; 3 small motor-driven pumps, automatic, etc.

T. C. Ephgrave has the general contract for addition to plant of the De Laval Co., Park Street, Peterborough, Ont., manufacturer of cream separators, etc.

The Northern Ontario Light & Power Co., Cobalt, Ont., will install additional equipment in its plant so as to enable it to double the power supply to Kirkland Lake.

The Campbell Aladdin Gas Maker Co., Ltd., Fort Erie, Ont., has been incorporated with a capital stock of \$250,000, by W. E. Hunt, F. W. Campbell, John L. Comfort and others. The company has already started operations in a plant at Smithville, Ont., and has opened a branch office at 9 St. Paul Street, St. Catharines, Ont.

The Beeby Range Co., Ltd., Eastview, Ont., is asking the Town Council for a fixed assessment and a free site in return for which it will erect a manufacturing plant to cost \$100,000 within the next year.

### Trade Changes

Beginning Sept. 1, the products of the American Wire Fabrics Corporation and the hardware products of the Wickwire-Fabrics Corporation and the hardware products of the Wickwire-Spencer Steel Corporation will be sold in certain sections of the country through one selling organization to be operated under the direction of the American Wire Fabrics Corporation. Separate sales representatives will, however, be continued on the Pacific Coast and in a few States immediately east thereof. The general selling offices of the combined companies will be located at 41 East 42nd Street, New York, under the direction of John A. Denholm, general sales manager. Western Sales Offices will be at 208 S. La Salle St., Chicago, under the direction of L. G. McDonald, Western sales manager. In addition to the above, offices operating under the new plan will be located at Worcester, Mass., Buffalo, Cleveland, Philadelphia, Jacksonville, Fla., and New Orleans. The sales policy will be taken care of by John A. Denholm, L. G. McDonald, and C. K. Sanderson president American Wire Fabrics Corporation. The accounting department will be moved to New York and the main office will remain in Chicago.

The Deemer Steel Casting Co., New Castle, Del., announces the election of the following officers: President, Newlin T. Booth; vice-president and treasurer, Charles F. Jenkins; secretary, George B. Harvey.

The Van Camp Hardware & Iron Co., Indianapolis, has elected the following officers: R. P. Van Camp, president, E. Van Camp Martindale, vice-president; C. J. Prentiss, vice-president; C. B. Crets, vice-president; A. B. Caldwell, secretary and treasurer and G. E. Varney, assistant secretary and treasurer. The new president succeeds the late Cortland Van Camp, who died Aug. 7.

The Consolidated Machine Tool Corporation of America will move its executive and general sales offices from 17 East Forty-second Street, New York, to Rochester, N. Y., on Sept. 1. The company will continue a New York sales office at 17 East Forty-second Street in charge of the salesmen who cover the New York territory.

The Triumph Electric Co., Cincinnati, has opened a district office at 500 S. Brevard Street, Charlotte, N. C., with J. McL. Jones as district manager. Mr. Jones has been connected with the electrical industry in North and South Carolina for a number of years, with the Southern Utility & Power Co., under James B. Duke.

The Crane-Schlefer-Owens, Inc. will succeed the Crane Machinery Co. and will establish offices in Buffalo, Rochester, and Syracuse, N. Y. Robert L. Crane, general manager of the Crane Machinery Co., and formerly Western New York manager for Henry Prentiss & Co. for 23 years, will have charge of the home office in Buffalo. Frederick W. Schiefer, manager for Henry Prentiss & Co., Rochester, for the past nine years, will be in charge of the Rochester office. Joseph F. Owens, sales manager for the past eleven years of the Lapointe Machine Tool Co., Hudson, Mass., will be in charge of the Syracuse office.

The Beardsley & Piper Co., manufacture of foundry machinery, has moved its office and factory to 2541 North Keeler Avenue, Chicago. The new plant is 90 x 206 ft., and provides an increase in capacity from two to six machines a week.

The United Metal Products Co., recently incorporated in Ohio and located at Canton, has purchased the properties of the former Central Metal Products Corporation and will continue in the manufacture of hollow metal doors and trim as well as rolled and drawn steel and bronze moldings for the architectural, automotive and other fields. H. R. Grable is general manager.

The Mianus Diesel Engine Co., Inc., Stamford, Conn., and the Mianus Motor Works, Inc., Stamford, have consolidated under a new Connecticut charter with a capital of \$1,500,000, under the name of the first mentioned company.

The C. & G. Cooper Co. and allied companies, the Chapman Engineering Co. and the Chapman-Stein Furnace Co., are discontinuing both their New York and Pittsburgh branch offices, and are asking that all communications be addressed to the home office at Mount Vernon, Ohio. In recent years so much of their work has involved an engineering service that they find they can respond to requests for quotations and special service much more quickly when these requests are sent direct to the home office at Mount Vernon. The chief products of these companies are steam and gas engines, air and gas compressors, special heavy machinery, gas producers, complete producer gas plants and industrial furnaces.

### Industrial Items

Work has been completed on a new factory building for the A. J. Braasch Heater Co., Orange Drive, Hollywood, Cal., and the company plans to increase its output of gas heaters and furnaces.

The Automobile Specialty Mfg. Co., Inc., Harrisburg, Pa., is manufacturing the Brennan radiometer motor temperature indicator and a number of other automobile specialties, doing some of the manufacturing itself, but letting some of the remainder on contract. Edward J. Brennan is vice-president and general manager of sales.

The Diamond Alloy Tool Co., Toledo, Ohio, recently incorporated to take over the manufacture of the line of tool steel previously made by the Kent-Owens Machine Co., has been financed by the sale of 250,000 of preferred stock and 12,000 shares of no par common stock. Hugh Ross is president, Walter Brown, vice-president, and Harold Fraser, secretary.

The annual meeting of the Pittsburgh Steel Co. will be held Oct. 30, at which time stockholders will be asked to vote on the proposition of increasing the capitalization from \$24,500,000 to \$30,000,000 by an issue of new common stock. If the plan is approved, shareholders will then be asked to authorize a 35,000 common share stock dividend out of the accrued surplus profits, the shares to be delivered in the ratio of one-quarter new share for each share held.

The Hi-Power Battery Mfg. Co., Hillsboro, Tex., recently incorporated with a capital of \$5,000 to manufacture storage batteries and equipment, is manufacturing everything that goes into a storage battery with the exception of the rubber jars and the wooden case or box.

Stockholders of the Pittsburgh Steel Co., Pittsburgh, will meet Oct. 30 to act upon an increase in the common stock from \$14,000,000 to \$19,000,000. Thirty-five thousand shares (\$3,500,000) of the new stock will be distributed to common stockholders at the rate of one share of new stock for four shares now held.

### Cost of Public Education

In a 32-page pamphlet the Chicago Association of Commerce presents results of a study of public education cost in Chicago and elsewhere, finding that the cost of elementary education in 1920 in all cities of over 300,000 population was \$50.59 per pupil, against \$105.85 per pupil in high schools.

Expenditures for high schools and other higher education are increasing much more rapidly than population because both factors, high school attendance and unit cost per pupil, are increasing. Since 1890 the total expenditure on high school education has multiplied by eight, while population has not doubled. Between 1908 and 1918 high school enrollment more than doubled, although population increased only 15 per cent. Between 1910 and 1920 expenditures for high school education were multiplied by 4.71 against 2.12 for elementary schools and 2.46 for all educational needs.



# Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-Ferrous Metals."

## Iron and Soft Steel Bars and Shapes

### Bars:

Refined iron bars, base price.....	3.54c.
Swedish charcoal iron bars, base.....	7.50c.
Soft steel bars, base price.....	3.54c.
Hoops, base price.....	5.19c.
Bands, base price.....	4.39c.
Beams and channels, angles and tees, 3 in. x ¼ in. and larger, base.....	3.64c.
Channels, angles and tees under 3 in. x ¼ in. base.....	3.54c.

### Merchant Steel

Per Lb.

Tire, 1½ x ½ in. and larger.....	3.60c.
(Smooth finish, 1 to 2½ x ¼ in. and larger).....	4.10c.
Toe-calk, ½ x ¾ in. and larger.....	4.60c.
Cold-rolled strip, soft and quarter hard.....	7.50c. to 8.50c.
Open-hearth, spring-steel.....	5.00c. to 7.50c.
Shafting and Screw Stock:	
Rounds.....	4.65c.
Squares, flats and hex.....	5.15c.
Standard tool steel, base price.....	15.00c.
Extra tool steel.....	18.00c.
Special tool steel.....	23.00c.
High speed steel, 18 per cent tungsten.....	75c. to 80c.

### Tank Plates—Steel

¼ in. and heavier.....	3.64c.
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### Sheets

#### Blue Annealed

Per Lb.

No. 10.....	4.59c.
No. 12.....	4.64c.
No. 14.....	4.69c.
No. 16.....	4.79c.

#### Box Annealed—Black

Soft Steel  
C. R., One Pass  
Per Lb.

Blued Stove  
Pipe Sheet  
Per Lb.

Nos. 18 to 20.....	4.30c. to 4.80c.	.....
Nos. 22 and 24.....	4.35c. to 4.85c.	5.10c.
No. 26.....	4.40c. to 4.90c.	5.15c.
No. 28.....	4.50c. to 5.00c.	5.25c.
No. 30.....	4.70c. to 5.20c.	.....

No. 28 and lighter, 36 in. wide, 20c. higher.

#### Galvanized

Per Lb.

No. 14.....	4.60c. to 5.10c.
No. 16.....	4.75c. to 5.25c.
Nos. 18 and 20.....	4.90c. to 5.40c.
Nos. 22 and 24.....	5.05c. to 5.45c.
No. 26.....	5.20c. to 5.70c.
No. 27.....	5.35c. to 5.85c.
No. 28.....	5.50c. to 6.00c.
No. 30.....	5.95c. to 6.50c.

No. 28 and lighter, 36-in. wide, 20c. higher.

### Welded Pipe

#### Standard Steel

Black Galv.

#### Wrought Iron

Black Galv.

½ in. Butt... —41	—24	½ in. Butt... —4	+19
¾ in. Butt... —46	—32	¾ in. Butt... —11	+9
1-3 in. Butt... —48	—34	1-1½ in. Butt... —14	+6
2½-6 in. Lap... —44	—30	2 in. Lap... —5	+14
7-8 in. Lap... —41	—11	2½-6 in. Lap... —9	+9
9-12 in. Lap... —34	—6	7-12 in. Lap... —3	+16

### Steel Wire

BASE PRICE\* ON NO. 9 GAGE AND COARSER Per Lb.

Bright basic.....	5.00c.
Annealed soft.....	5.00c.
Galvanized annealed.....	5.65c.
Coppered basic.....	5.65c.
Tinned soft Bessemer.....	6.65c.

\*Regular extras for lighter gage.

## Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet.....	18½c. to 19½c.
High brass wire.....	19 c. to 20 c.
Brass rods.....	16¾c. to 17¾c.
Brass tube, brazed.....	26½c. to 27½c.
Brass tube, seamless.....	24 c. to 25 c.
Copper tube, seamless.....	25½c. to 26½c.

### Copper Sheets

Sheet copper, hot rolled, 21¾c. to 22¾c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

### Tin Plates

Bright Tin	Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20	Coke—14 x 20	Prime	Seconds
	IC..\$11.75	\$10.50	80 lb..	\$6.55	\$6.30
	IX.. 13.00	11.75	90 lb..	6.65	6.40
	IXX.. 14.75	13.00	100 lb..	6.75	6.50
	IXXX.. 16.50	14.75	IC..	7.00	6.75
	IXXXX.. 18.50	16.50	IX..	8.25	8.00
			IXX..	9.50	9.25
			IXXX..	10.75	10.50
			IXXXX..	12.00	10.75

### Terne Plates

8 lb. coating, 14 x 20

100 lb. ....	\$7.00 to \$8.00
IC .....	7.25 to 8.25
IX .....	8.25 to 8.75
Fire door stock .....	9.00 to 10.00

### Tin

Straits pig .....	42c.
Bar .....	48c. to 53c.

### Copper

Lake ingot .....	17c.
Electrolytic .....	16½c.
Casting .....	16¼c.

### Spelter and Sheet Zinc

Western spelter .....	7½c.
Sheet zinc, No. 9 base, casks.....	10½c. open 11c.

### Lead and Solder\*

American pig lead .....	8c. to 8¼c.
Bar lead .....	11c. to 12c.
Solder, ½ and ½ guaranteed .....	29c.
No. 1 solder .....	27c.
Refined solder .....	23c.

\*Prices of solder indicated by private brand vary according to composition.

### Babbitt Metal

Best grade, per lb.....	75c. to 90c.
Commercial grade, per lb.....	35c. to 50c.
Grade D, per lb.....	25c. to 35c.

### Antimony

Asiatic .....	9c. to 9½c.
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### Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb.....	32c. to 33c.
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### Old Metals

There has been a little more activity during the past week, but prices are on about the same level. Dealers' buying prices are nominally as follows:

	Cents Per Lb.
Copper, heavy crucible .....	12.00
Copper, heavy wire .....	11.25
Copper, light bottoms .....	9.50
Brass, heavy .....	6.25
Brass, light .....	5.00
Heavy machine composition .....	9.00
No. 1 yellow brass turnings .....	6.25
No. 1 red brass or composition turnings .....	8.00
Lead, heavy .....	5.50
Lead, tea .....	4.25
Zinc .....	4.00

